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PUBLICATIONS OF THE BUREAU OF FOREIGN COMMERCE.*

The publications of the Bureau of Foreign Commerce, Department of State, are:

I.—COMMERCIAL RELATIONS, being the annual reports of consular officers on the commerce, industries, navigation, etc., of their districts.

II.—CONSULAR REPORTS, issued monthly, and containing miscellaneous reports from diplomatic and consular officers.

III.—ADVANCE SHEETS, CONSULAR REPORTS, issued daily, except Sundays and legal holidays, for the convenience of the newspaper press, commercial and manufacturing organizations, etc.

IV.—EXPORTS DECLARED FOR THE UNITED STATES, issued quarterly, and containing the declared values of exports from the various consular districts to the United States for the preceding three months. There is also issued an annual edition of Declared Exports, embracing the returns for the fiscal year.

V.—SPECIAL CONSULAR REPORTS, containing series of reports from consular officers on particular subjects, made in pursuance to instructions from the Department.

Following are the special publications issued by the Bureau prior to 1890:

Labor in Europe, 1878, one volume; Labor in Foreign Countries, 1884, three volumes; Commerce of the World and the Share of the United States Therein, 1879; Commerce of the World and the Share of the United States Therein, 1880–81; Declared Exports for the United States, First and Second Quarters, 1883; Declared Exports for the United States, Third and Fourth Quarters, 1883; Cholera in Europe in 1884, 1885; Trade Guilds of Europe, 1885; The Licorice Plant, 1885; Forestry in Europe, 1887; Emigration and Immigration, 1885–86 (a portion of this work was published as CONSULAR REPORTS No. 76, for the month of April, 1887); Rice Pounding in Europe, 1887; Sugar of Milk, 1887; Wool Scouring in Belgium, 1887; Cattle and Dairy Farming in Foreign Countries, 1888 (issued first in one volume, afterwards in two volumes); Technical Education in Europe, 1888; Tariffs of Central America and the British West Indies, 1890.

The editions of all these publications except Tariffs in Central America, etc., are exhausted and the Department is, therefore, unable to supply copies.

In 1890, the Department decided to publish reports on special subjects in separate form, to be entitled SPECIAL CONSULAR REPORTS. There are now the following SPECIAL CONSULAR REPORTS:

Vol. 1 (1890).—Cotton Textiles in Foreign Countries, Files in Spanish America, Carpet Manufacture in Foreign Countries, Malt and Beer in Spanish America, and Fruit Culture in Foreign Countries.

Vol. 2 (1890 and 1891).—Refrigerators and Food Preservation in Foreign Countries, European Emigration, Olive Culture in the Alpes Maritimes, and Beet-Sugar Industry and Flax Cultivation in Foreign Countries.

Vol. 3 (1891).—Streets and Highways in Foreign Countries. (New edition, 1897.)

Vol. 4 (1891).—Port Regulations in Foreign Countries.

Vol. 5 (1891).—Canals and Irrigation in Foreign Countries. (New edition, 1898.)

Vol. 6 (1891 and 1892).—Coal and Coal Consumption in Spanish America, Gas in Foreign Countries, and India Rubber.

Vol. 7 (1892).—The Stave Trade in Foreign Countries and Tariffs of Foreign Countries.

Vol. 8 (1892).—Fire and Building Regulations in Foreign Countries.

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*Formerly Bureau of Statistics. Name changed to Bureau of Foreign Commerce by order of the Secretary of State, July 1, 1897.

Vol. 9 (1892 and 1893).—Australian Sheep and Wool and Vagrancy and Public Charities in Foreign Countries.

Vol. 10 (1894).—Lead and Zinc Mining in Foreign Countries and Extension of Markets for American Flour. (New edition, 1897.)

Vol. 11 (1894).—American Lumber in Foreign Markets. (New edition, 1897.)

Vol. 12 (1895).—Highways of Commerce. (New edition, 1899.)

Vol. 13 (1896 and 1897).—Money and Prices in Foreign Countries.

Vol. 14 (1898).—The Drug Trade in Foreign Countries.

Vol. 15 (1898).—Part I. Soap Trade in Foreign Countries; Screws, Nuts, and Bolts in Foreign Countries; Argols in Europe, Rabbits and Rabbit Furs in Europe, and Cultivation of Ramie in Foreign Countries. Part II. Sericulture and Silk Reeling and Cultivation of the English Walnut.

Vol. 16 (1899).—Tariffs of Foreign Countries. Part I. Europe. Part II. America. Part III. Asia, Africa, Australasia, and Polynesia. Supplement (1900). Tariffs of Chile and Nicaragua.

Vol. 17 (1899).—Disposal of Sewage and Garbage in Foreign Countries; Foreign Trade in Coal Tar and By-Products.

Vol. 18 (1900).—Merchant Marine of Foreign Countries.

Vol. 19 (1900).—Paper in Foreign Countries; Uses of Wood Pulp.

Vol. 20 (1900).—Part I. Book Cloth in Foreign Countries, Market for Ready-Made Clothing in Latin America, Foreign Imports of American Tobacco, and Cigar and Cigarette Industry in Latin America. Part II. School Gardens in Europe. Part III. The Stave Trade in Foreign Countries.

Vol. 21 (1900).—Part I. Foreign Markets for American Coal. Part II. Vehicle Industry in Europe. Part III. Trusts and Trade Combinations in Europe.

Vol. 22 (1900 and 1901).—Part I. Acetic Acid in Foreign Countries. Part II. Mineral-Water Industry. Part III. Foreign Trade in Heating and Cooking Stoves.

Vol. 23 (1901).—Part I. Gas and Oil Engines in Foreign Countries.

Of these SPECIAL CONSULAR REPORTS, Australian Sheep and Wool, Cotton Textiles in Foreign Countries, Files in Spanish America, Fire and Building Regulations, Fruit Culture, Gas in Foreign Countries, India Rubber, Lead and Zinc Mining, Malt and Beer in Spanish America, Port Regulations, Refrigerators and Food Preservation; Sericulture, etc.; Vagrancy, etc., are exhausted, and no copies can be supplied by the Department.

There was also published, in 1899, Proclamations and Decrees during the War with Spain, comprising neutrality circulars issued by foreign countries, proclamations by the President, orders of the War and Navy Departments, and war decrees of Spain.

Of the monthly CONSULAR REPORTS, many numbers are exhausted or so reduced that the Department is unable to accede to requests for copies. Of the publications of the Bureau available for distribution, copies are mailed to applicants without charge. In view of the scarcity of certain numbers, the Bureau will be grateful for the return of any copies of the monthly or special reports which recipients do not care to retain. Upon notification of willingness to return such copies, the Department will forward franking labels to be used in lieu of postage in the United States, Canada, the Hawaiian Islands, Porto Rico, and Mexico.

Persons receiving CONSULAR REPORTS regularly, who change their addresses, should give the old as well as the new address in notifying the Bureau of the fact.

In order to prevent confusion with other Department bureaus, all communications relating to consular reports should be carefully addressed, "Chief, Bureau of Foreign Commerce, Department of State, Washington, U. S. A."

VALUES OF FOREIGN COINS AND CURRENCIES.

The following statements show the valuation of foreign coins, as given by the Director of the United States Mint and published by the Secretary of the Treasury, in compliance with the first section of the act of March 3, 1873, viz: "That the value of foreign coins, as expressed in the money of account of the United States, shall be that of the pure metal of such coin of standard value," and that "the value of the standard coins in circulation of the various nations of the world shall be estimated annually by the Director of the Mint, and be proclaimed on the 1st day of January by the Secretary of the Treasury."

In compliance with the foregoing provisions of law, annual statements were issued by the Treasury Department, beginning with that issued on January 1, 1874, and ending with that issued on January 1, 1890. Since that date, in compliance with the act of October 1, 1890, these valuation statements have been issued quarterly, beginning with the statement issued on January 1, 1891.

The fact that the market exchange value of foreign coins differs in many instances from that given by the United States Treasury has been repeatedly called to the attention of the Bureau of Foreign Commerce. An explanation of the basis of the quarterly valuations was asked from the United States Director of the Mint, and under date of February 7, 1898, Mr. R. E. Preston made the following statement:

"When a country has the single gold standard, the value of its standard coins is estimated to be that of the number of grains fine of gold in them, 480 grains being reckoned equivalent to $20.67 in United States gold, and a smaller number of grains in proportion. When a country has the double standard, but keeps its full legal-tender silver coins at par with gold, the coins of both gold and silver are calculated on the basis of the gold value.

"The value of the standard coins of countries with the single silver standard is calculated to be that of the average market value of the pure metal they contained during the three months preceding the date of the proclamation of their value in United States gold by the Secretary of the Treasury. The value of the gold coins of silver-standard countries is calculated at that of the pure gold they contain, just as if they had the single gold standard.

"These valuations are used in estimating the values of all foreign merchandise exported to the United States."

The following statements, running from January 1, 1874, to April 1, 1902, have been pre pared toassist in computing the values in American money of the trade, prices, values, wages, etc., of and in foreign countries, as given in consular and other reports. The series of years are given so that computations may be made for each year in the proper money values of such year. In hurried computations, the reductions of foreign currencies into American currency, no matter for how many years, are too often made on the bases of latest valuations. All computations of values, trade, wages, prices, etc., of and in the "fluctuating-currency countries" should be made in the values of their currencies in each year up to and including 1898, and in the quarterly valuations thereafter.

To meet typographical requirements, the quotations for the years 1875–1877, 1879–1882, 1884–1887, 1895, and 1897 are omitted, these years being selected as showing the least fluctuations when compared with years immediately preceding and following.

To save unnecessary repetition, the estimates of valuations are divided into three classes, viz: (A) countries with fixed currencies, (B) countries with fluctuating currencies, and (C) quarterly valuations of fluctuating currencies.

A.—*Countries with fixed currencies.*

The following official (United States Treasury) valuations of foreign coins do not include "rates of exchange."

Countries.	Standard.	Monetary unit.	Value in U.S. gold.	Coins.
Argentine Republic..	Gold and silver..	Peso.....	$0.96,5	Gold—argentine ($4.82,4) and ½ argentine; silver—peso and divisions.
Austria-Hungary*.....	Gold	Crown.....	.20,3	Gold—20 crowns ($4.05,2) and 10 crowns.
Belgium.....	Gold and silver..	Franc	.19,3	Gold—10 and 20 franc pieces; silver—5 francs.
Brazil	Gold	Milreis	.54,6	Gold—5, 10, and 20 milreis; silver—½, 1, and 2 milreis.
British North America (except Newfoundland).	.....do.....	Dollar.....	1.00	
British Honduras.....	.....do.....	.....do.....	1.00	
Chile.....	.....do.....	Peso.....	.36,5	Gold—escudo ($1.25), doubloon ($3.65), and condor ($7.30); silver—peso and divisions.
Costa Rica.....	.....do.....	Colon.....	.46,5	Gold—2, 5, 10, and 20 colons; silver—5, 10, 25, and 50 centisimos.
Cuba	Gold and silver..	Peso.....	.92,6	Gold—doubloon ($5.01,7); silver—peso (60 cents).
Denmark	Gold	Crown.....	.26,8	Gold—10 and 20 crowns.
Ecuador †	.....do.....	Sucre.....	.48,7	Gold—10 sucres ($4.8665); silver—sucre and divisions.
Egypt.....	.....do.....	Pound (100 piasters).	4.94,3	Gold—10, 20, 50, and 100 piasters; silver—1, 2, 10, and 20 piasters.
Finland	.....do.....	Mark.....	.19,3	Gold—10 and 20 marks ($1.93 and $3.85,9).
France	Gold and silver..	Franc	.19,3	Gold—5, 10, 20, 50, and 100 francs; silver—5 francs.
Germany	Gold	Mark.....	.23,8	Gold—5, 10, and 20 marks.
Great Britain.....	.....do.....	Pound sterling..	4.86,6½	Gold—sovereign (pound sterling) and half sovereign.
Greece	Gold and silver..	Drachma.....	.19,3	Gold—5, 10, 20, 50, and 100 drachmas; silver—5 drachmas.
Haiti	.....do.....	Gourde.....	.96,5	Silver—gourde.
India ‡.....	Gold	Rupee.....	.32,4	Gold—sovereign ($4.8665); silver—rupee and divisions.
Italy	Gold and silver..	Lira	.19,3	Gold—5, 10, 20, 50, and 100 lire; silver—5 lire.
Japan §.....	Gold	Yen	.49,8	Gold—1, 2, 5, 10, and 20 yen.
Liberia	.....do.....	Dollar.....	1.00	
Netherlands.....	Gold and silver..	Florin	.40,2	Gold—10 florins; silver—½, 1, and 2½ florins.
Newfoundland	Gold	Dollar.....	1.01,4	Gold—$2 ($2.02,7).
Peru ‖.....	.....do.....	Sol	.48,7	Gold—libra ($4.8665); silver—sol and divisions.
Portugal	.....do.....	Milreis	1.08	Gold—1, 2, 5, and 10 milreis.
Russia ¶.....	.....do.....	Ruble	.51,5	Gold—imperial ($7.718) and ½ imperial ($3.80); silver—¼, ½, and 1 ruble.
Spain.....	Gold and silver..	Peseta.....	.19,3	Gold—25 pesetas; silver—5 pesetas.
Sweden and Norway.	Gold	Crown.....	.26,8	Gold—10 and 20 crowns.
Switzerland	Gold and silver..	Franc	.19,3	Gold—5, 10, 20, 50, and 100 francs; silver—5 francs.
Turkey	Gold	Piaster	.04,4	Gold—25, 50, 100, 200, and 500 piasters.
Uruguay	.....do.....	Peso.....	1.03,4	Gold—peso; silver—peso and divisions.
Venezuela.....	Gold and silver..	Bolivar.....	.19,3	Gold—5, 10, 20, 50, and 100 bolivars; silver—5 bolivars.

*The gold standard went into effect January 1, 1900 (see Commercial Relations, 1899, Vol. II, p. 7). Values are still sometimes expressed in the florin, which is worth 2 crowns.

† Gold standard adopted in November, 1900. (See Consular Reports No. 225, June, 1899.)

‡ For an account of the adoption of the gold standard, see Consular Reports No. 238, p. 359.

§ Gold standard adopted October 1, 1897. (See Consular Reports No. 201, p. 259.)

‖ Gold standard adopted October 13, 1900.

¶ For an account of the adoption of the gold standard, see Review of the World's Commerce, 1896-97, p. 254.

B.—*Countries with fluctuating currencies, 1874–1898.*

Countries.	Standard.	Monetary unit.	Value in terms of the United States gold dollar on January 1—					
			1874.	1878.	1883.	1888.	1889.	1890.
Austria-Hungary*.	Silver	Florin	$0.47,6	$0.45,3	$0.40,1	$0.34,5	$0.33,6	$0.42
Bolivia	do	Dollar until 1880; boliviano thereafter.	.96,5	.96,5	.81,2	.69,9	.68	.85
Central America	do	Peso	.96,5	.91,8		.69,9	.68	.85
China	do	Haikwan tael	1.61					
Colombia	do	Peso	.96,5	.96,5	.81,2	.69,9	.68	.85
Ecuador	do	do	.96,5	.91,8	.81,2	.69,9	.68	.85
Egypt†	Gold	Pound (100 piasters).		4.97,4	4.90	4.94,3		
India	Silver	Rupee	.45,8	.43,6	.38,6	.32,2	.32,3	.40,4
Japan	Gold	Yen	.99,7	.99,7		.99,7	.99,7	.99,7
	Silver				.87,6	.75,3	.73,4	.91,7
Mexico	do	Dollar	1.04,7½	.99,8	.88,2	.75,9	.73,9	.92,3
Netherlands‡	Gold and Silver.	Florin	.40,5	.38,5				
Peru	Silver	Sol	.92,5	.91,8	.81,2	.69,9	.68	.85
Russia	do	Ruble	.77,17	.73,4	.65	.55,9	.54,4	.68
Tripoli	do	Mahbub of 20 piasters.	.87,09	.82,9	.73,3	.63	.61,4	.76,7

Countries.	Standard.	Monetary unit.	Value in terms of the United States gold dollar on January 1—					
			1891.	1892.	1893.	1894.	1896.	1898.
Austria-Hungary*.	Silver	Florin	$0.38,1	$0.34,1				
Bolivia	do	Boliviano	.77,1	.69,1	$0.61,3	$0.51,6	$0.49,1	$0.42,4
Central America	do	Peso	.77,1	.69,1	.61,3	.51,6	.49,1	.42,4
Colombia	do	do	.77,1	.69,1	.61,3	.51,6	.49,1	.42,4
Ecuador	do	do	.77,1	.69,1	.61,3	.51,6	.49,1	.42,4
India	do	Rupee	.36,6	.32,8	.29,2	.24,5	.23,3	.20,1
Japan§	do	Yen	.83,1	.74,5	.66,1	.55,6	.52,9	
Mexico	do	Dollar	.83,7	.75	.66,6	.56	.53,3	.46
Peru	do	Sol	.77,1	.69,1	.61,3	.51,6	.49,1	.42,4
Russia§	do	Ruble	.61,7	.55,3	.49,1	.41,3	.39,3	
Tripoli	do	Mahbub of 20 piasters.	.69,5	.62.3	.55,3	.46,5	.44,3	

*The silver standard prevailed in Austria-Hungary up to 1892. The law of August 2 of that year (see CONSULAR REPORTS No. 147, p. 623) established the gold standard.

†The Egyptian pound became fixed in value at $4.94,3 in 1887.

‡The Netherlands florin fluctuated up to the year 1880, when it became fixed at 40.2 cents.

§See footnote, table of fixed currencies.

C.—*Quarterly valuations of fluctuating currencies.*

Countries.	Monetary unit.	1899.				1900.			
		Jan. 1.	April 1.	July 1.	Oct. 1.	Jan. 1.	April 1.	July 1.	Oct. 1.
Bolivia	Silver boliviano.	$0.43,9	$0.43,4	$0.44,3	$0.43,6	$0.42,7	$0.43,6	$0.43,8	$0.45,1
Central America.	Silver peso	.43,9	.43,4	.44,3	.43,6	.42,7	.43,6	.43,8	.45,1
China	Amoy tael	.71	.70,2	.71,6	.70,5	.69,1	.70,5	.70,9	.72,9
	Canton tael	.70,8	.70	.71,4	.70,3	.68,9	.70,3	.70,7	.72,7
	Chefoo tael	.67,9	.67,2	.68,4	.67,4	.66,1	.67,4	.67,8	.69,7
	Chinkiang tael	.69,3	.68,6	.69,9	.68,9	.67,5	.68,8	.69,3	.71,2
	Fuchau tael	.65,6	.65	.66,2	.65,2	.64	.65,2	.65,6	.67,4
	Haikwan tael	.72,2	.71,4	.72,8	.71,8	.70,3	.71,7	.72,1	.74,2
	Hankau tael	.66,4	.65,7	.67	.66	.64,7	.65,9	.66,3	.68,2
	Hongkong tael	(*)	(*)	(*)	(*)	(*)	(*)	(*)	(*)
	Ningpo tael	.68,2	.67,5	.68,8	.67,8	.66,5	.67,7	.68,2	.70,1
	Niuchwang tael.	.66,5	.65,9	.67,1	.66,1	.64,8	.66,1	.66,5	.68,4
	Shanghai tael	.64,8	.64,1	.65,4	.64,4	.63,1	.64,4	.64,8	.66,6
	Swatow tael	.65,5	.64,9	.66,1	.65,1	.63,9	.65,1	.65,5	.67,4
	Takao tael	.71,4	.70,7	.72	.71	.69,6	.70,9	.71,4	.73,4
	Tientsin tael	.68,8	.68	.69,4	.68,3	.67	.68,3	.68,7	.70,7
Colombia	Silver peso	.43,9	.43,4	.44,3	.43,6	.42,7	.43,6	.43,8	.45,1
Ecuador †	do	.43,9	.43,4	.44,3	.43,6				
India	Silver rupee‡	.20,8	.20,6	.21	.20,7	.20,3	.20,7	.20,8	
Mexico	Silver dollar	.47,7	.47,2	.48,1	.47,4	.46,4	.47,3	.47,6	.49
Persia	Silver kran	.08,1	.08	.08,2	.08	.07,9	.08	.08,1	.08,3
Peru †	Silver sol	.43,9	.43,4	.44,3	.43,6	.42,7	.43,6	.43,8	.48,7

Countries.	Monetary unit.	1901.				1902.	
		Jan. 1.	April 1.	July 1.	Oct. 1.	Jan. 1.	April 1.
Bolivia	Silver boliviano.	$0.46,8	$0.45,1	$0.43,6	$0.42,8	$0.41,3	$0.40,3
Central America	Silver peso	.46,5	.45,1	.43,6	.42,8	.41,3	.40,3
China	Amoy tael	.75,7	.72,9	.70,5	.69,1	.66,9	.65,1
	Canton tael	.75,5	.72,7	.70,3	.68,9	.66,7	.64,9
	Chefoo tael	.72,4	.69,7	.67,4	.66,1	.63,9	.62,3
	Chinkiang tael	.74	.71,2	.68,8	.67,5	.65,3	.63,6
	Fuchau tael	.70,1	.67,5	.65,2	.64	.61,8	.60,2
	Haikwan tael	.77,1	.74,2	.71,7	.70,4	.68	.66,3
	Hankau tael	.70,9	.68,2	.65,9	.64,7	.62,6	.60,9
	Hongkong tael	(*)	(*)	(*)	(*)	(*)	(*)
	Ningpo tael	.72,8	.70,1	.67,8	.66,5	.64,3	.62,6
	Niuchwang tael.	.71	.68,4	.66,1	.64,8	.62,7	.61,1
	Shanghai tael	.69,2	.66,6	.64,4	.63,2	.61,1	.59,5
	Swatow tael	.70	.67,4	.65,1	.63,9	.61,8	.60,2
	Takao tael	.76,2	.73,4	.70,9	.69,6	.67,3	.65,5
	Tientsin tael	.73,4	.70,7	.68,3	.67	.64,8	.63,1
Colombia	Silver peso	.46,8	.45,1	.43,6	.42,8	.41,3	.40,3
Mexico	Silver dollar	.50,9	.49	.49	.46,4	.44,9	.43,7
Persia	Silver kran	.08,6	.08,3	.08,3	.07,9	.07,6	.07,4

* The "British dollar" has the same legal value as the Mexican dollar in Hongkong, the Straits Settlements, and Labuan.

† See footnote, table of fixed currencies.

‡ The sovereign is the standard coin of India, but the rupee is the money of account. See also table of fixed currencies.

FOREIGN WEIGHTS AND MEASURES.

The following table embraces only such weights and measures as are given from time to time in CONSULAR REPORTS and in Commercial Relations:

Foreign weights and measures, with American equivalents.

Denominations.	Where used.	American equivalents.
Almude	Portugal	4.422 gallons.
Ardeb	Egypt	7.6907 bushels.
Are	Metric	0.02471 acre.
Arobe	Paraguay	25 pounds.
Arratel or libra	Portugal	1.011 pounds.
Arroba (dry)	Argentine Republic	25.3175 pounds.
Do	Brazil	32.38 pounds.
Do	Cuba	25.3664 pounds.
Do	Portugal	32.38 pounds.
Do	Spain	25.36 pounds.
Do	Venezuela	25.4024 pounds.
Arroba (liquid)	Cuba, Spain, and Venezuela	4.263 gallons.
Arshine	Russia	28 inches.
Arshine (square)	do	5.44 square feet.
Artel	Morocco	1.12 pounds.
Baril	Argentine Republic and Mexico	20.0787 gallons.
Barrel	Malta (customs)	21.4 gallons.
Do	Spain (raisins)	100 pounds.
Berkovets	Russia	361.12 pounds.
Bongkal	India	832 grains.
Bouw	Sumatra	7,096.5 square meters.
Bu	Japan	0.1 inch.
Butt (wine)	Spain	140 gallons.
Caffiso	Malta	5.4 gallons.
Candy	India (Bombay)	529 pounds.
Do	India (Madras)	500 pounds.
Cantar	Morocco	113 pounds.
Do	Syria (Damascus)	575 pounds.
Do	Turkey	124.7036 pounds.
Cantaro (cantar)	Malta	175 pounds.
Carga	Mexico and Salvador	300 pounds.
Catty	China	1.333⅓ (1⅓) pounds.
Do*	Japan	1.31 pounds.
Do	Java, Siam, and Malacca	1.35 pounds.
Do	Sumatra	2.12 pounds.
Centaro	Central America	4.2631 gallons.
Centner	Bremen and Brunswick	117.5 pounds.
Do	Darmstadt	110.24 pounds.
Do	Denmark and Norway	110.11 pounds.
Do	Nuremberg	112.43 pounds.
Do	Prussia	113.44 pounds.
Do	Sweden	93.7 pounds.
Do	Vienna	123.5 pounds.
Do	Zollverein	110.24 pounds.
Do	Double or metric	220.4t pounds.
Chetvert	Russia	5.7748 bushels.
Chih	China	14 inches.

*More frequently called "kin." Among merchants in the treaty ports it equals 1.33⅓ pounds avoirdupois.

Foreign weights and measures, with American equivalents—Continued.

Denominations.	Where used.	American equivalents.
Coyan	Sarawak	3,098 pounds.
Do	Siam (Koyan)	2,667 pounds.
Cuadra	Argentine Republic	4.2 acres.
Do	Paraguay	78.9 yards.
Do	Paraguay (square)	8.077 square feet.
Do	Uruguay	Nearly 2 acres.
Cubic meter	Metric	35.3 cubic feet.
Cwt. (hundredweight)	British	112 pounds.
Dessiatine	Russia	2.6997 acres.
Do	Spain	1.599 bushels.
Drachme	Greece	Half ounce.
Egyptian weights and measures	(*See* CONSULAR REPORTS No. 144.)	
Fanega (dry)	Central America	1.5745 bushels.
Do	Chile	2.575 bushels.
Do	Cuba	1.599 bushels.
Do	Mexico	1.54728 bushels.
Do	Morocco	Strike fanega, 70 lbs.; full fanega, 118 lbs.
Do	Uruguay (double)	7.776 bushels.
Do	Uruguay (single)	3.888 bushels.
Do	Venezuela	1.599 bushels.
Fanega (liquid)	Spain	16 gallons.
Feddan	Egypt	1.03 acres.
Frail (raisins)	Spain	50 pounds.
Frasco	Argentine Republic	2.5096 quarts.
Do	Mexico	2.5 quarts.
Frasila	Zanzibar	35 pounds.
Fuder	Luxemburg	264.17 gallons.
Funt	Russia	0.9028 pound.
Garnice	Russian Poland	0.88 gallon.
Gram	Metric	15.432 grains.
Hectare	do	2.471 acres.
Hectoliter:		
Dry	do	2.838 bushels.
Liquid	do	26.417 gallons.
Joch	Austria-Hungary	1.422 acres.
Ken	Japan	6 feet.
Kilogram (kilo)	Metric	2.2046 pounds.
Kilometer	do	0.621376 mile.
Klafter	Russia	216 cubic feet.
Koku	Japan	4.9629 bushels.
Korree	Russia	3.5 bushels.
Kwan	Japan	8.28 pounds.
Last	Belgium and Holland	85.134 bushels.
Do	England (dry malt)	82.52 bushels.
Do	Germany	2 metric tons (4,480 pounds).
Do	Prussia	112.29 bushels.
Do	Russian Poland	113⅗ bushels.
Do	Spain (salt)	4,760 pounds.
League (land)	Paraguay	4,633 acres.
Li	China	2,115 feet.
Libra (pound)	Argentine Republic	1.0127 pounds.
Do	Central America	1.043 pounds.
Do	Chile	1.014 pounds.
Do	Cuba	1.0161 pounds.
Do	Mexico	1.01465 pounds.
Do	Peru	1.0143 pounds.
Do	Portugal	1.011 pounds.
Do	Spain	1.0144 pounds.
Do	Uruguay	1.0143 pounds.
Do	Venezuela	1.0161 pounds.

Foreign weights and measures, with American equivalents—Continued.

Denominations.	Where used.	American equivalents.
Liter	Metric	1.0567 quarts.
Livre (pound)	Greece	1.1 pounds.
Do	Guiana	1.0791 pounds.
Load	England (timber)	Square, 50 cubic feet; unhewn, 40 cubic feet; inch planks, 600 superficial feet.
Manzana	Costa Rica	1⅘ acres.
Do	Nicaragua and Salvador	1.727 acres.
Marc	Bolivia	0.507 pound.
Maund	India	82⅔ pounds.
Meter	Metric	39.37 inches.
Mil	Denmark	4.68 miles.
Do	Denmark (geographical)	4.61 miles.
Milla	Nicaragua and Honduras	1.1403 miles.
Morgen	Prussia	0.63 acre.
Oke	Egypt	2.7225 pounds.
Do	Greece	2.84 pounds.
Do	Hungary	3.0817 pounds.
Do	Turkey	2.82838 pounds.
Do	Hungary and Wallachia	2.5 pints.
Pic	Egypt	21⅛ inches.
Picul	Borneo and Celebes	135.64 pounds.
Do	China, Japan, and Sumatra	133⅓ pounds.
Do	Java	135.1 pounds.
Do	Philippine Islands	137.9 pounds.
Pie	Argentine Republic	0.9478 foot.
Do	Spain	0.91407 foot.
Pik	Turkey	27.9 inches.
Pood	Russia	36.112 pounds.
Pund (pound)	Denmark and Sweden	1.102 pounds.
Quarter	Great Britain	8.252 bushels.
Do	London (coal)	36 bushels.
Quintal	Argentine Republic	101.42 pounds.
Do	Brazil	130.06 pounds.
Do	Castile,* Chile, Mexico, and Peru	101.41 pounds.
Do	Greece	123.2 pounds.
Do	Newfoundland (fish)	112 pounds.
Do	Paraguay	100 pounds.
Do	Syria	125 pounds.
Do	Metric	220.46 pounds.
Rottle	Palestine	6 pounds.
Do	Syria	5¼ pounds.
Sagene	Russia	7 feet.
Salm	Malta	490 pounds.
Se	Japan	0.02451 acres.
Seer	India	1 pound 13 ounces.
Shaku	Japan	11.9305 inches.
Sho	....do	1.6 quarts.
Standard (St. Petersburg)	Lumber measure	165 cubic feet.
Stone	British	14 pounds.
Suerte	Uruguay	2,700 cuadras (see cuadra).
Sun	Japan	1.193 inches.
Tael	Cochin China	590.75 grains (troy).
Tan	Japan	0.25 acre.
To	....do	2 pecks.
Ton	Space measure	40 cubic feet.
Tonde (cereals)	Denmark	3.94783 bushels.
Tondeland	....do	1.36 acres.

*Although the metric weights are used officially in Spain, the Castile quintal is employed in commerce in the Peninsula and colonies, save in Catalonia; the Catalan quintal equals 91.71 pounds.

Foreign weights and measures, with American equivalents—Continued.

Denominations.	Where used.	American equivalents.
Tsubo	Japan	6 feet square.
Tsun	China	1.41 inches.
Tunna	Sweden	4.5 bushels.
Tunnland	Sweden	1.22 acres.
Vara	Argentine Republic	34.1208 inches.
Do	Central America	32.87 inches.
Do	Chile and Peru	33.367 inches.
Do	Cuba	33.384 inches.
Do	Curaçao	33.375 inches.
Do	Mexico	33 inches.
Do	Paraguay	34 inches.
Do	Spain	0.914117 yard.
Do	Venezuela	33.384 inches.
Vedro	Russia	2.707 gallons.
Vergees	Isle of Jersey	71.1 square rods.
Verst	Russia	0.663 mile.
Vlocka	Russian Poland	41.98 acres.

METRIC WEIGHTS AND MEASURES.

Metric weights.

Milligram ($\frac{1}{1000}$ gram) equals 0.0154 grain.
Centigram ($\frac{1}{100}$ gram) equals 0.1543 grain.
Decigram ($\frac{1}{10}$ gram) equals 1.5432 grains.
Gram equals 15.432 grains.
Decagram (10 grams) equals 0.3527 ounce.
Hectogram (100 grams) equals 3.5274 ounces.
Kilogram (1,000 grams) equals 2.2046 pounds.
Myriagram (10,000 grams) equals 22.046 pounds.
Quintal (100,000 grams) equals 220.46 pounds.
Millier or tonnea—ton (1,000,000 grams) equals 2,204.6 pounds.

Metric dry measures.

Milliliter ($\frac{1}{1000}$ liter) equals 0.061 cubic inch.
Centiliter ($\frac{1}{100}$ liter) equals 0.6102 cubic inch.
Deciliter ($\frac{1}{10}$ liter) equals 6.1022 cubic inches.
Liter equals 0.908 quart.
Decaliter (10 liters) equals 9.08 quarts.
Hectoliter (100 liters) equals 2.838 bushels.
Kiloliter (1,000 liters) equals 1.308 cubic yards.

Metric liquid measures.

Milliliter ($\frac{1}{1000}$ liter) equals 0.0388 fluid ounce.
Centiliter ($\frac{1}{100}$ liter) equals 0.338 fluid ounce.
Deciliter ($\frac{1}{10}$ liter) equals 0.845 gill.
Liter equals 1.0567 quarts.
Decaliter (10 liters) equals 2.6418 gallons.
Hectoliter (100 liters) equals 26.417 gallons.
Kiloliter (1,000 liters) equals 264.18 gallons.

Metric measures of length.

Millimeter ($\frac{1}{1000}$ meter) equals 0.0394 inch.
Centimeter ($\frac{1}{100}$ meter) equals 0.3937 inch.
Decimeter ($\frac{1}{10}$ meter) equals 3.937 inches.

Meter equals 39.37 inches.
Decameter (10 meters) equals 393.7 inches.
Hectometer (100 meters) equals 328 feet 1 inch.
Kilometer (1,000 meters) equals 0.62137 mile (3,280 feet 10 inches).
Myriameter (10,000 meters) equals 6.2137 miles.

Metric surface measures.

Centare (1 square meter) equals 1,550 square inches.
Are (100 square meters) equals 119.6 square yards.
Hectare (10,000 square meters) equals 2.471 acre.

CONSULAR REPORTS.

COMMERCE, MANUFACTURES, ETC.

Vol. LXIX. MAY, 1902. No. 260.

DALNY, THE RUSSIAN COMMERCIAL SEAPORT IN NORTH CHINA.

The meaning of Dalny in Russian is "far away," and to the Russians this is the distant city of commerce.

This city is the Pacific coast terminus of the Chinese Eastern Railway and its connections, the Central Manchurian and the Great Siberian Railway, and is the commercial seaport of Russia, established, created, and constructed in accordance with the following edict of the Emperor of Russia, dated July 30, 1899:

To the Minister of Finance:

Our Empire, which comprises immense territories in Europe and in Asia, has been summoned by Divine Providence to contribute toward the friendly intercourse of the people of the Occident with those of the Orient. In attaining this historical object, we have had the friendly cooperation of the Emperor of China, who has ceded to us the use of the port of Talienwan and of Port Arthur, and has opened to us through his possessions an outlet for the great line of railway from Siberia to the Yellow Sea. Thanks to this wise decision of the Government of His Majesty the Bogdokhan, the extreme limits of the two continents of the Old World will soon be united by a continuous line of rails, which will secure to all nations the incalculable advantages of easy communication, and will bring new regions into the general development of trade.

In our constant solicitude for this undertaking of such general usefulness, we have carefully considered what a position of importance the starting point of this line, Talienwan, will occupy when the road has been constructed. As we declared at the time of its occupation that this port should be open to the commercial fleets of all nations, we have now decided to begin the erection near to it of a city, which we shall call "Dalny."

At the same time, in view of the commercial development of the future city,

we confer upon it for the whole term during which that territory has been leased to Russia by China, under the agreement dated the $\frac{15th}{27th}$ of March, 1898, the rights of free trade which belong to free ports, upon the following conditions:

I. The right to import and export merchandise of every description free of customs duties is established in the city, in the port, and in the adjacent territory up to a fixed boundary line, which may be changed by the Minister of Finance.

II. The right of free trade thus established shall not affect the tolls for carriage or for anchorage or such other taxes of various kinds which usually obtain in seaports.

III. Quarantine regulations for the exclusion of contagious diseases shall be applied in full force to ships entering the port.

IV. Merchandise imported into Russia and coming from the territory to which the right of free trade is thus extended shall be examined and shall pay such duties upon entering the limits of the Empire as are provided for by the general laws which govern the importation of foreign goods.

Invoking the blessing of God upon this future undertaking, so truly peaceful, I take upon myself the care of building the new city and its port.

LOCATION.

The Liao-tung Peninsula, of Manchuria, extends south into the Gulf of Pechili to a point slightly beyond the thirty-ninth degree of latitude.

Talienwan Bay is on the eastern side of the peninsula, exactly on the thirty-ninth degree of north latitude, facing the Bay of Korea, and by rail 45 miles north of Port Arthur.

HARBOR.

This is one of the finest deep-water harbors of the Pacific, as it is free from ice, and ships drawing 30 feet can enter at low tide without any difficulty and, even without the aid of a pilot, sail or steam up alongside of immense docks and piers, well protected by breakwaters, where their cargoes can be loaded directly into cars that run direct for 6,000 miles or more to the great city of St. Petersburg. The surface of the bay comprises many miles, and the deep-water area is sufficient to handle the shipping of all China.

The rise and fall of tide does not exceed 12 feet.

PIERS: BREAKWATER.

Five large piers are being constructed of blocks of stone and cement, each weighing from 20 to 50 tons. These piers will vary in width from sixty to several hundred feet and in length from a quarter of a mile to half a mile, and each will be supplied with numerous railroad tracks and immense warehouses and elevators, gas, electric lights, and water. One of these piers was completed in July, 1901, and another will be ready for use by the end of the year. (Views Nos. 1 and 2.) There is abundance of room in the harbor and sufficient depth of water to provide for any number of piers desired.

A large and substantial breakwater is being constructed across

the pier harbors, so that ships can lie at the piers and load and unload regardless of the weather.

DOCKS.

Docks for foreign vessels, steam and sail, will extend between these piers and along the shore for 2 miles.

Docks, piers, and anchorage for the Chinese native crafts will be in another portion of the bay opposite the native city, convenient to the railroad line.

The construction of docks is progressing well, and two large dredgers built in Glasgow and laid down at Dalny, at a cost of £38,000 ($188,900) each, are doing splendid service in deepening and filling the harbor. (View No. 3.)

Streets are being graded and great tracts of rock and soil are being leveled, the surplus material being taken by cars and trains to fill up and perfect docks, piers, and harbor. (View No. 4.)

DRY DOCKS.

Two first-class dry docks are also being constructed; one is intended for ordinary ocean steamers and the other is designed to accommodate the largest vessels of commerce or war that float the oceans of the world.

The first of these dry docks is in course of active construction, as 1,700 men are daily working for its completion. (Views Nos. 5 and 6.)

It is difficult to conceive of a port where the economy of handling cargo will excel that of the harbor of Dalny, when it is completed. From the design and execution so far as completed, founded upon the splendid features nature presents at this place, it will be practically a perfect harbor.

FREE PORT.

The port is to be absolutely free, as no custom-house is to be established. Even the moderate rates of Chinese customs will not be charged on goods landing or to be exported thence.

Tonnage dues, dock charges, and wharfage and warehouse charges will all be maintained at the lowest point, with the view to encourage and develop commerce. All of these features will be modeled on the methods of Japan.

The low-priced coolie service, the small labor required to move goods from the great ocean vessels to the cars, the ease of entrance into the harbor at all seasons of the year, and the announced policy of low charges will combine to make this the most economical shipping port of the Orient; and the enormous trade which a wise and honest policy of railroad administration is sure to develop will create here one of the greatest commercial points on the Pacific.

THE CITY.

The city (see map), according to the plan that is being followed in construction, is to consist first of the administration portion, in which will be located railroad shops for making cars, etc., repair shops, steamship construction and repair shops, port, steamship, and railway headquarters and offices, residences of mechanics and general employees, together with parks, hotels, churches, schools, clubs, and places for amusements.

This portion of the city is being completed at the present time and contains a great area of well-constructed streets and substantial brick buildings. (Views Nos. 7 and 8.)

Immediately back of this administration city, which is built on a small peninsula, is located the godown, warehouse, large hong, and general wholesale section. This portion extends to the docks and piers, and, together with the administration and Chinese section, covers the entire water front. This is now being graded and leveled, and in some places buildings are being constructed. (Views Nos. 9 and 10.)

Joining this is the retail and general mercantile section, and farther off toward the hills and on gradually sloping higher ground that commands a beautiful view of the bay lies the foreign-residence section, where ground is being leveled and streets graded and paved. (View No. 11.)

Back of this lie the nursery greenhouses and gardens for propagating flowers, shrubs, and trees for parks, lawns, and streets. A competent horticulturist is in charge, and he has many acres under cultivation with flowers, shrubs, fruits, and ornamental trees. (View No. 12.)

The Chinese section faces on the bay and is distinctly separate, with docks and junk shipping adjoining.

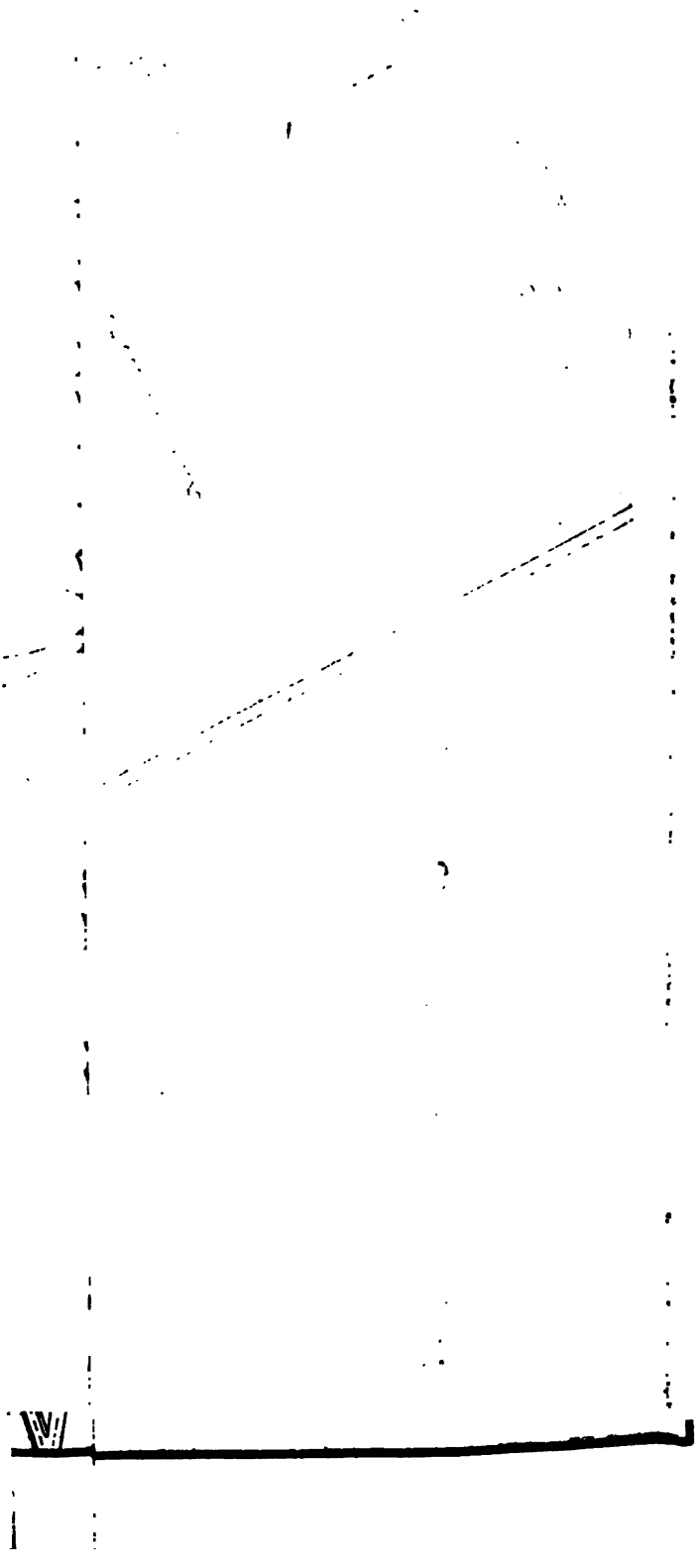
Electric lights are already in operation, and a complete system of electric tramways is in course of construction.

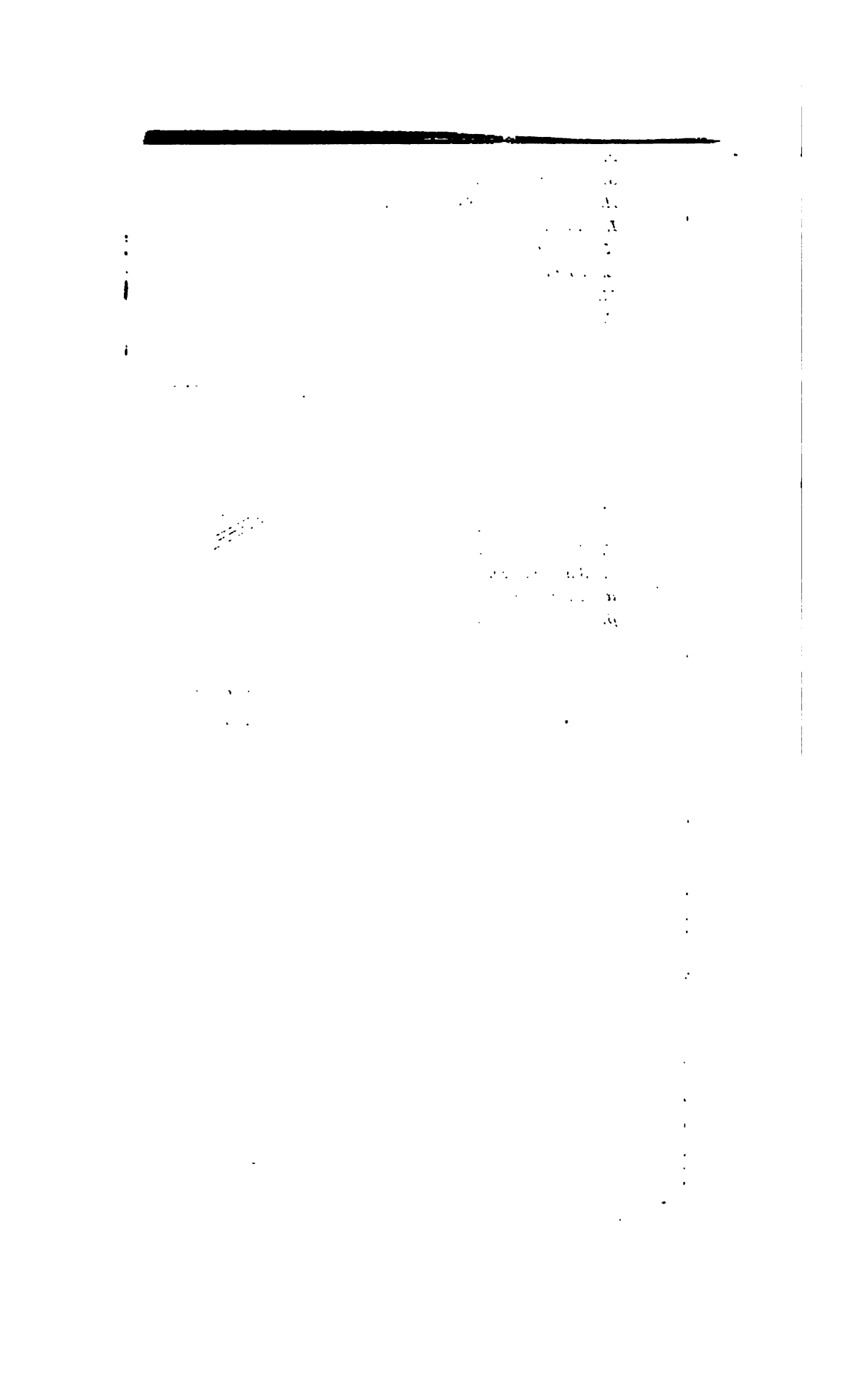
SEA BEACH.

About 3 miles from the foreign settlement, to the southeast, is an excellent sea beach that is to be arranged for a summer resort. Already, an excellent highway is being made to connect it with the town.

POPULATION.

There are 23,000 men daily at work in the construction of the port and town, and the total population is about 50,000, mostly Chinese, many Japanese, Koreans, and Russians, and a few of other nationalities.





COST OF PORT AND TOWN.

Already something over 12,000,000 rubles ($6,180,000) are said to have been expended in purchasing the plant and constructing harbor and city, and it is stated that it is the intention to expend 23,000,000 rubles ($11,845,000) more in completing it, or a total cost of 35,000,000 rubles ($18,025,000).

No contracts are let in construction, but grading, rock work, etc., where possible, are paid for by measurements.

The work as a whole is being done in a thorough and substantial manner, and all shows an honest and earnest determination on the part of the men in charge to build a durable, effective, and beautiful city.

FUTURE GOVERNMENT.

It is intended that the city will be free to people of all nations.

Land is to be sold at auction to the highest bidders as soon as lots are graded and streets, etc., completed. These sales are expected to begin about the 1st of April, 1902. Many people have already erected buildings on land, under an arrangement to have the first right to purchase or to have all their improvements paid for by other purchases.

The city is to be managed by a council to be elected by the ratepayers. Two of the council must be Russian subjects, and not more than two Chinese or two Japanese can be elected so as to sit in the council at the same time.

The water, light, and street-car service is to be apart from the control of the town council.

RAILROADS.

The Chinese Eastern Railway, which terminates at Dalny, is completed north to Harbin, where it connects with the Central Manchurian Railroad; this road is completed east to Vladivostock and west to Kaidalovo, where it connects with the Great Siberian Railroad, which has heretofore carried its traffic to the head of navigation on the Amur, thence down this stream to Harbarosk, and south by railroad to Vladivostock.

On November 1, 1901, the Central Manchurian and the Chinese Eastern railways are to be opened for traffic and cars will then be able to pass direct from Dalny to St. Petersburg, and train service will be continuous, Lake Baikal being crossed by steamers carrying the trains.

There is a long tunnel to be completed through the Greater Hsingan Mountains that will require nearly two years to finish, but in the interim a track has been laid over the tunnel and traffic is now going over the mountains.

Commercial traffic is only just beginning on the Chinese Eastern

and Central Manchurian Railways, and after November 1, 1901, regular trains and through connection will be established.

The newly appointed Russian minister to Pekin has just passed over the route, going from St. Petersburg to Dalny in twenty-one days. As soon as the entire line is completed, it is intended to run fast trains, with excellent car service, every three or four days.

While through rates are not yet established, the chief engineer at Dalny informed me that the charge from Dalny to St. Petersburg would not exceed 150 rubles ($77.25), including berths and sleeping accommodations, but not meals.

A round-the-world excursion rate over this line is being negotiated for at a still lower price.

STEAMER SERVICE.

The Chinese Eastern Railway Company, under the direction and with the support of the Russian Government, is not only building the railroad and the port and town of Dalny, but it is already engaged in the steamship-service and has over twenty steamers in the China service doing business at Port Arthur and Dalny. This number will be increased and larger and better vessels added; and as soon as through travel is established, the managers intend to run fast boats in connection with their fast trains. They have designed fine passenger boats to leave Dalny an hour after the arrival of the fast trains and steam to Nagasaki, Japan, at the rate of 16 knots per hour. This fast service will not be established for something over a year, but they already have a very comfortable steamer running to Chefoo from Dalny.

RAILROAD CONNECTIONS IN AMERICA.

I have been advised that connections are to be made with the Canadian Pacific Railroad for the round-the-world traffic over this line. It would certainly be a wise move for the railroads in the United States to take an interest in this matter at once, and be ready at the beginning to give our country the benefit to be derived from this great enterprise.

OPPORTUNITIES FOR CITIZENS OF THE UNITED STATES.

One of the most serious drawbacks to American trade in China and throughout the Orient is the limited number of citizens of the United States to be found here.

While we have a greater variety and quantity of products fitted to this market than any other country, our trade is restricted because of the limited number of citizens representing us. Great Britain has about ten citizens to our one here, and nearly all are trades people. Germany is pushing her commerce with much success by establishing mercantile houses in charge of Germans.

While traveling salesmen do much good, the real need of our country all over the Orient is the presence of merchants who are citizens of our country, familiar with its products and business methods. There is no country doing as large a share of the trade of the Orient with so small a percentage of citizens as the United States. This shows our great natural economic advantages and the splendid opportunities we have here for trade.

Good firms, marketing the products suited to this country, should send a permanent agent here to represent them.

The banks of China support the native merchants; and with modern steamships to bring cargo, and modern banking facilities, the handling of the business should not be a heavy financial burden.

The commercial town of Dalny offers a splendid opportunity for the establishment of new business enterprises on the part of our citizens.

The port will begin commerce about December 1, 1901.

I inclose copy of the land regulations of the town, a copy of report of climate of Dalny, and a list of company steamers of the Chinese Eastern Railway.

HENRY B. MILLER,

NIUCHWANG, *September 29, 1901.* *Consul.*

PRESENT REGULATIONS FOR SELLING LAND IN DALNY.

Foreigners are authorized to own land in Dalny, and Chinese can own land in the European settlement, under the condition that they build in European style and are governed by the sanitary and other regulations.

I.—Measurements and boundaries.

The measurements and boundaries of every lot of land are shown in the official plot; each lot has its own number, each plot has different measurement, and every person is allowed to buy one or more lots.

The open space in the middle of the European settlement measures about 1 acre, and in the Chinese settlement about half an acre.

II.—Selling of lots.

The lots will be sold after streets are completed according to the applications made by purchasers. Applications are to be made to the mayor or to the chief in charge of the work. When lots are to be sold, they will be advertised in the foreign papers and by posters in the Chinese, Russian, and English languages. They will be sold at auction to the highest bidder, but the bid must equal the reserved price.

The auction will be in the mayor's office (at present the chief engineer's). Choice lots may be sold without auction at the price to be fixed by the town committee.

III.—Appraising the lots and rules for buying.

Land will be sold on two plans—one, absolute ownership, for which the money must be paid in full; the other, a perpetual lease or for a term of years, by paying 5 per cent per annum on the value.

The following list shows the price per square sagene:*

Class.	Value.	
	Mexican.	Gold.*
Lot of first class	$10.00	$1.70
Lot of second class	8.00	3.76
Lot of third class	6.00	2.82
Lot of fourth class	4.00	1.88

* According to the valuation of the United States Mint, January 1, 1902.

Before any increase is made in the above reserved prices, notice must be published in the newspapers for three months.

Lots containing depressions between 1 and 3 sagenes (5.4 and 16.2 square yards) have the depressions measured at only half value; if over 3 sagenes (16.2 square yards), the depression is not measured in the selling price.

IV.—Annual rent.

Persons buying under a lease can have a perpetual lease by paying 5 per cent per annum in advance. The lessee may have right to purchase the land at any time by payment of the full value, without any deduction on account of payments made as rent or lease.

V.—Selling land for factories and commercial purposes.

Parties desiring to purchase the land for manufacturing or large commercial purposes must apply directly to the Chinese Eastern Railway, and such land will be sold without auction, provided it is outside the European settlement.

VI.—Method of purchase.

Persons bidding on land must pay 5 per cent of the value of the land before they are allowed to bid, and the successful bidder must within ten days pay the balance of the price bid, or, if leased, 5 per cent of the difference between the reserve price and the auction price bid.

VII.—Deeds for landowners.

Immediately following the sale, deeds will be issued, on paying the amount due, in three copies. Purchaser must sign an agreement on these deeds that, if leased, he will make his payment regularly every year in advance, that he will pay taxes that may become due, and that he will obey the regulations of the town, failing in which he will pay all fines imposed. The owner will have one copy of deed and two will remain in the office of mayor.

VIII.—Fines for not paying rents and taxes.

If the taxes or rents are not paid on the $\frac{1\text{st}}{13\text{th}}$ of February, the owner shall pay 12 per cent per annum on the amount not paid. If taxes, rents, and fines are not paid by the $\frac{31\text{st December}}{13\text{th January}}$ following, the mayor may sell that property at auction, and after the value of the land, taxes, and fines have been paid, any surplus will be handed over to the original purchaser.

* 1 square sagene equals one one-hundred and thirty-two thousandths of a mow, or 4.5 square meters (5.4 square yards).

IX.—Obligation of purchaser to improve.

Within two years from the time of purchase, the owner is compelled to have buildings and improvements on the same, to the following value for each square sagene (5.4 square yards):

Class.	Value.	
	Mexican.	Gold.
First class	$15.00	$7.05
Second class	12.00	5.64
Third class	8.00	3.76
Fourth class	6.00	2.82

The value of the improvements will be assessed by a committee composed of one man from the Chinese Eastern Railway and two men from the town committee. If the said improvements have not been made to the value fixed within two years, the mayor shall have the right to resell the property without resorting to the courts.

X.—Regulations concerning lots facing on streets.

On the map is shown the location of the buildings and the distance from the street. The space between the building and the street is reserved by the town, and the owner has only the right to make gardens or places for temporary goods, and not place thereon any permanent structure or building. This space must be surrounded by a fence according to the plan provided by the town. This open space between the street and building is not paid for by the purchaser or lessee of the land, and the user must turn it over to the city authority or the mayor on demand.

XI.—Reselling of lots.

Land may be transferred by the original deed being handed back to the mayor and new ones being issued in its place, on which the man purchasing must sign an agreement as upon the original. The new deed will not be issued until all rent and taxes have been paid. For the issuance of new deed, $15 ($7.05 gold) will be charged.

XII.—Dividing lots.

Persons desiring to divide their lots into small tracts must surrender the old deed and have separate deeds issued for each section of the lot, and are not allowed to divide the lot into fractions smaller than 100 sagenes (540 square yards) in the European settlement and 15 sagenes (81 square yards) in the Chinese, except where land is to be sold to the adjoining owner and the fraction remaining is not less than the above amount.

XIII.—Lots for official use.

Land will be reserved for official purposes, consulates, churches, schools, recreation grounds, parks, etc. These lots will be donated, under condition that they will not be used for other purposes than those for which they were granted. The lots will be subject to all other regulations to pay taxes, deeds, etc.

XIV.—Regulations for building.

Every owner must present his plan for building to the town committee, on which he must show the full measurements and details of the house, and agree to conform with the regulations prescribed by the building committee. In the European settlement, buildings are not allowed to be constructed with mud floors and inflammable roof material. In the Chinese town, all buildings must be on stone foundations, with burnt-brick columns and lime mortar for plastering. All the sanitary and fire regulations must be carefully observed in the construction of

houses. Any violation of these regulations will permit the mayor to stop the construction and remove the material without damages being paid to the owner.

Nothing will be allowed in the town that disturbs the community and interferes with the health and comfort of the people.

XV.—Town committee.

The administration will be handed over to the mayor selected by the Imperial Russian Government and a town committee.

XVI.—Official language.

The official language in Dalny is Russian. The official papers and work are to be Russian, and persons not acquainted with Russian language must send communications and complaints in either Chinese or English, accompanied by $2 (94 cents gold) for translation.

All accounts and money are to be paid in Mexican dollars.

XVII.—Alteration of the regulations.

In case the Imperial Russian Government finds it necessary to alter these regulations, the changes must be advertised in all the papers of the East for three months before they come into force.

CLIMATE AT DALNY IN 1900.

Month.	Temperature.	Maximum temperature.	Middle temperature.	Rainfall.		Earthquake.
	*Degrees.**	*Degrees.**	*Degrees.**	*Mm.*	*Inches.*	
January	+ 4.2	−15.4	− 6.26	1.3	.....	.....
February	+ 9	−11.2	− .72	9.9	.....	.....
March	+15	+ 4.8	+ 4.89	28.5	4	.....
April	+23.1	+ 3.8	+13.52	21.8	3	.....
May	+33.4	+ 9.4	+19.07	35.8	6	.....
June	+33.6	+17.3	+23.43	5.8	4	.....
July	+32.1	+19.4	+25.65	100.7	13	.....
August	+31.7	+15	+23.59	106.1	15	.....
September	+29.8	+ 7.4	+17.93	14.4	4	.....
October	+19.9	− 3.5	+ 9.63	16	3	.....
November	+12.5	−12.2	+ 1.09	10.4	4	.....
December	+ 6.8	−13	− 2.67	2	.....	1

*Centigrade.

Number of winds and their direction in 1900.

Month.	N.	NNE.	NE.	ENE.	E.	ESE.	SE.	SSE.	S.	SSW.	SW.	WSW.	W.	WNW.	NW.	NNW.	Calm.
January	19	2	2	.....	2	.....	.....	1	2	1	12	4	8	3	11	10	16
February	14	2	2	1	8	2	2	1	2	1	13	1	6	4	10	8	10
March	17	2	.....	1	6	.....	7	2	3	5	15	.....	4	2	8	5	16
April	1	.....	1	.....	11	3	.....	.....	3	7	13	3	9	7	7	11	17
May	3	1	2	.....	11	1	9	2	4	4	20	1	1	1	9	3	21
June	.....	.....	3	.....	8	.....	1	3	4	1	23	.....	6	3	2	3	33
July	0	2	3	3	6	2	5	7	18	3	24	0	1	1	3	2	13
August	5	5	7	0	11	3	0	9	3	0	17	4	3	3	6	6	12
September	5	2	4	2	2	3	2	1	3	0	22	2	10	0	11	11	10
October	12	3	1	1	7	.....	.....	1	4	1	28	2	12	2	2	6	11
November	14	3	8	2	3	.....	1	1	.....	.....	21	2	1	10	4	5	15
December	15	1	5	1	1	.....	.....	.....	.....	.....	14	2	4	3	6	10	31

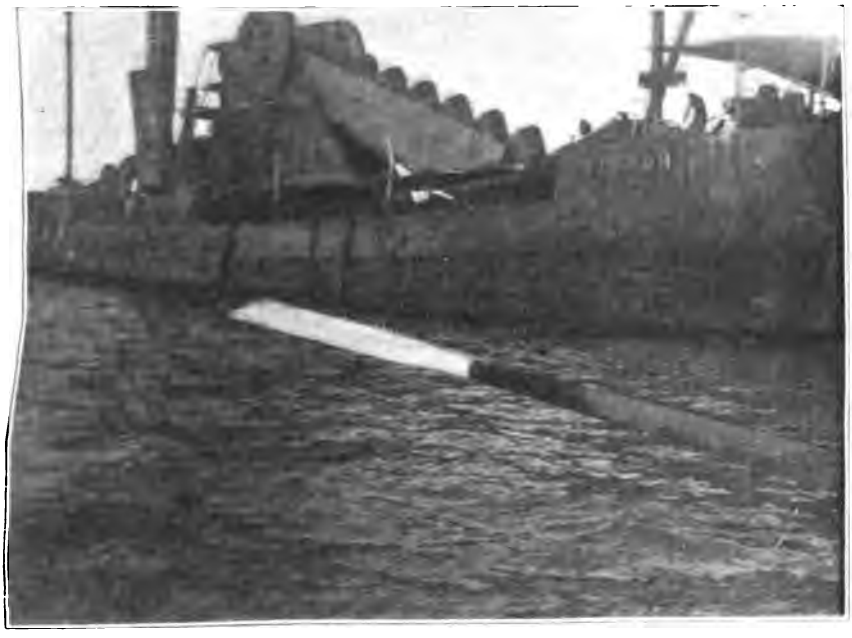
CHINESE EASTERN RAILWAY.

List of company steamers.

Name of steamer.	Tonnage.			Length.	Breadth.	Depth molded.	Draft, full cargo.	Dead weight at load draft.	Passengers.			Speed.
	Gross.	Under deck.	Net.						First class.	Second class.	Third class.	
	Tons.	*Tons.*	*Tons.*	*Ft. In.*	*Ft. In.*	*Ft. In.*	*Ft. In.*	*Tons.*	*Number.*	*Number.*	*Number.*	*Knots.*
Mukden	1,565	1,070	880	244 0	34 15	19 3	17 10	2,010	12	.....	360	.....
Girin	1,439	1,291	924	245 0	34 3	17 5½	16 6	1,850	6	.....	100	9.5
Tsizikar	1,028	787¼	650	221 0	32 0	16 4	.....	.....	.....	.....	.....	.....
Ningoota	990	880	482	260 0	31 6	16 0	.....	1,079	32	.....	116	9.3
Soongari	1,415	938	814	237 6	34 2	17 9	.....	.....	32	.....	.....	15
Novik	338	226	148	150 3	22 2	11 3	.....	.....	.....	.....	.....	13.5
Yingkou	200	.....	84	127 0	25 0	12 0	8 6½	.....	7	.....	211	.....
Sibiriak	150	.....	93	92 0	19 6	.....	.....	.....	.....	.....	.....	.....
Harbin	3,639	2,834	2,668	410 3	39 0	28 9	.....	.....	48	.....	.....	12.5
Hailar	5,606	5,235	3,515	430 6	46 5	36 0	27 7	4,743	45	.....	.....	.....
Nagadan	599	166	456	244 0	28 3	10 3	.....	.....	32	.....	1,316	17.18
Zua	918	836	445	200 0	30 0	13 0	.....	.....	.....	.....	.....	11
Burcia	918	836	445	200 0	30 0	13 0	.....	.....	.....	.....	.....	11
Mongolia	.....	.....	.....	344 0	43 0	23 6	18 3	1,650	94	.....	.....	16
Manchuria	.....	.....	.....	344 0	43 0	23 6	18 3	1,650	94	.....	.....	16
Argum	.....	.....	1,397	275 0	41 6	24 0	18 0	2,000	50	15	150	12
Amour	.....	.....	1,384	275 0	41 6	24 0	18 0	2,000	50	.....	150	12
Nonni	.....	.....	1,384	275 0	41 6	24 0	18 0	2,000	50	.....	150	12
Shilka	.....	.....	1,384	275 0	41 6	24 0	18 0	2,000	50	.....	150	12

View No. 1.—Handling the 50-ton blocks for construction of piers.

View No. 2.—Laying the 50-ton blocks for the piers.



View No. 3.—Dredger.

View No. 4.—Carrying earth and rock to fill docks.

View No. 5.—Dry dock in course of construction.

View No. 6.—Section of harbor; coolies leveling rock.

View No. 7.—Constructing administration part of Dalny.

View No. 8.—Completed section of administration part.

View No. 9.—Grading for construction of wholesale section.

View No. 10.—Preparing for construction of wholesale section.

View No. 11.—Preparing streets for foreign-residence section.

View No. 12.—Residence of park superintendent.

MINERAL SPRINGS OF SIBERIA.

The entire region of the Trans-Baikal is said to be rich in hot mineral springs, and the aborigines of that region, as well as the Russian settlers, are said to be familiar with their medicinal properties. Hitherto, nothing has been done in the way of scientific investigation and proper classification of the waters. The lands in which the springs are situated fall under the title of Crown lands; hence they are in the jurisdiction of the Ministry of Agriculture.

Recently, Professor Zalessky, a well-known Russian expert, was sent to the Trans-Baikal country to examine, analyze, and report upon the most important springs along the line of the Great Siberian Railway. The most popular springs are the Turkinsk Hot Springs, in the Bayuseni district, near the "Holy," or "Rich," Lake Baikal. There are many wonderful legends connected with the cures reported, and they go back to the earliest times. The Iron Springs, near Darassunsk, south of Chita (where the new Manchurian line joins the main road), are well known locally and are patronized. Then there are the Makovieff Springs, between Chita and Nerchinsk. With the opening up of the new railway and the beginning of work on the Circum-Baikal line next spring, doubtless many invalids who now seek the baths of Obama, in Japan, will avail themselves of the facilities nearer home. These ancient medicinal springs may not equal those of New Zealand; but they are far more important than has been previously estimated, and Professor Zalessky's report will be looked for with interest.

In Kamchatka, there are many mineral springs and geysers, but, with the exception of the Serebriamkoff Springs, none of them have any accommodations for visitors.

R. T. GREENER,
Commercial Agent.

VLADIVOSTOCK, *January 20, 1902.*

AGRICULTURE IN EASTERN SIBERIA.

In reply to several inquiries as to the sale of agricultural implements and agricultural conditions in this province, I submit the following.

Enoch Emory came to Siberia from Cape Cod forty years ago. He was the pioneer American merchant, and now has stores at

Nikolaefsk, Habarofsk, Blagoveschensk, and Moscow. Governor Grodekoff said that he had increased the working force of the Amur territory 20,000 men by the introduction of American labor-saving machinery. Most of the supplies under the head of emigrant stores are furnished to the local government by him. American agricultural machines have enjoyed such an established reputation that it has long been a paying business to imitate them. The complaint now is that many cheap and inferior machines, mostly made in Germany from American models, are on the market. Since the retaliatory tariff took effect, February 7 (20), 1901,* many American machines come via Germany, it is asserted; all American marks being carefully obliterated.

At present, there is no great demand for American machinery. The market is well stocked, crops are bad, money is scarce, the Government is closing down on credit, and the condition of the Siberian peasant farmer is deplorable. Efforts are being made to teach the peasant how to farm. In the United States, the foreign immigrant learns by everyday example, rather than by theory. The Siberian peasant is not used to severe and unremitting labor; he has few wants and many holidays. Lately, some highly colored reports have reached us from America as to what Siberia was capable of doing in an agricultural way. It is suggested that American flour mills on the Pacific coast will soon be closed in consequence of the millions of acres here ready to be devoted to cereals. An uncertain climate, imperfect machinery, and unreliable labor are not factors for successful competition with the United States.

Notwithstanding the cheap transportation offered emigrants and the development of virgin soils, famine seems a periodical visitor, and it is here to-day. The central governments are literally besieged with clamors for bread, for medicine, for work, grain, hay—anything. Tomsk, Perm, Kerson, Yaronej, Khalkinsk, all join in this demand. It is safe to say that the United States need have no immediate fear of competition from this quarter, whether it be in grain or machinery, canned goods or cotton goods, production of gold, or building of ships. The new tariff has caused a rise in the price of all necessaries. It has made imperative an imperial ukase allowing employees of the Ministry of the Interior one month's pay. The appropriation has already been made.

Up to November 1 (14), there have been collected for the famine sufferers 60,000,000 poods (361,120,000 pounds) of wheat, for which 10,000,000 rubles ($5,150,000) are allowed. Local authorities in charge of public grain are urged to secure all that is available.

* ADVANCE SHEETS No. 1017; CONSULAR REPORTS No. 250.

The following tables give an idea of agricultural conditions:

Agricultural machines bought by inhabitants of South Ussurien and Habarofsk districts in 1899 and 1900.

Article.	1899.	1900.
	Number.	*Number.*
Plows	1,326	1,773
Reapers	46	57
Thrashing machines	15	39
Corn vans	278	300
Assorters	4	6
Farrow weed assorters	.....	1

Agricultural machines sold in the Maritime district in 1899 and 1900.

Article.	1899.	1900.
	Number.	*Number.*
Plows	1,345	1,705
Reaping machines	51	44
With sheaf binder	.....	2
Thrashing machines	56	68
Steam	.....	1
For French seed	1	.....
Corn vans	203	301
Sifting machines	.....	4
Horserakes	.....	4
Hand thrashers	.....	1
Steam locomotives	.....	1
Plowshares:		
Steel	304	145
Cast iron	38	.....
Plow chisels	138	95
Wooden blocks	270	43
Spinning wheels	1	.....

The sowing of grain, etc., in South Ussurien district in 1901.

Cereal.	Tchernigovski district.	Zenkovs district.	Spass district.
	Acres.	*Acres.*	*Acres.*
Rye	115	390	182
Spring corn	75	29	162
Wheat	3,950	1,719	2,819
Oats	1,222	496	1,393
Barley	462	408	621
Buckwheat	1,138	530	1,264
French wheat (different kinds)	191	158	193
Potatoes	.....	139	810
Beans	.....	7	.....
Pease	.....	24¾	59
Linseed and neckweed	.....	72¼	260

The sowing of grain, etc., in two village districts of the Maritime province in 1901.

Cereal.	Soochansky village district (21 villages).	Rasdolninskoy village district (12 villages).
	Acres.	*Acres.*
Rye	113.3	.....
Spring wheat	1,052.3	67.4
Wheat	3,355.7	132.2
Oats	2,286.6	1,490.2
Barley	467	43.2
Buckwheat	569.6	137.6
Millet	188.9	1,935.6
Choomisa	415.7	.....
Paysa	356.3	.....
Potatoes	558.8	496.7
Indian corn	307.7	329.6
Beans	413	672.2
Tobacco	13.4	.....
Vegetables	407.6	167.3
Pease	32.4	.....
Flax and hemp	302.3	45.8

RICHARD T. GREENER,
VLADIVOSTOCK, *December 31, 1901.* *Commercial Agent.*

INDUSTRIAL EXPOSITION AT OSAKA, JAPAN.

In reply to an official inquiry, the Japanese Department for Agriculture and Commerce has furnished this office with information showing that the coming National Industrial Exposition, under the auspices of the Imperial Government, will be held at Osaka from March 1 to July 31, 1903, and that it will present a novel feature, to which the general attention of foreign manufacturers and the industrial world is called.

This feature is the establishment of a special building for samples of articles produced or manufactured in foreign countries. It is not concealed that the primary object of this invitation is to afford Japanese manufacturers an opportunity to study the latest products of Western invention, with a view to the improvement of Japanese industries; but it is claimed that in return the establishment of the building in question offers to foreign manufacturers a rare opportunity for exploiting the rapidly developing markets of the whole Far East, as the exposition is expected to attract immense crowds of visitors from the continental countries of Asia, in addition to the millions of Japanese.

The following notification of the Imperial Department of Agriculture and Commerce is published for the information of intending exhibitors:

ARTICLE 1. This building (for foreign samples) shall be established in the compounds of the Fifth National Industrial Exhibition at Tennoji, Minami-ku, Osaka City, and shall be open from March 1 to July 31, 1903.

ART. 2. In this building shall be exhibited samples of such articles collected, produced, or manufactured in foreign countries as may be of value for purposes of industrial comparison and reference.

ART. 3. Government officers and private individuals, both Japanese and foreign, shall be allowed without any charge to exhibit in this building any of the objects mentioned in the foregoing article.

ART. 4. Intending exhibitors to this building should forward applications, according to the form described below, to the office of the chief commissioner for the Fifth National Industrial Exhibition, in the Department of Agriculture and Commerce at Tokyo, not later than the 30th of June, 1902.

ART. 5. Every application for exhibition should be accompanied by detailed explanations of such exhibits. In case of machinery, the application should also be accompanied by a drawing or drawings. In case machines are to be worked at the exhibition, their horsepower should be mentioned.

ART. 6. If any intending exhibitor desires to erect at his expense a special building for the accommodation of his own exhibits, he should forward a detailed description of the proposed structure and the dimensions of such building, together with the aforementioned application for exhibition.

ART. 7. Accepted applicants for exhibition are required to have their exhibits brought to, and arranged in, the building between January 5 and February 20, 1903. In case exhibitors may be unable to comply with the aforementioned requirement, the arranging of their exhibits shall be undertaken by the office of the chief commissioner on their request, such request to be sent in writing, together with the exhibits, to the branch of the above-mentioned office at Osaka, not later than February 15, 1903.

ART. 8. According to the class and nature of the exhibits, they may be placed out of doors or in other buildings.

ART. 9. Cases, stands, and all other appliances necessary for the arrangement of exhibits should be provided by the exhibitors. In case such appliances are not provided by exhibitors, they shall be furnished by the office of the chief commissioner at the request of the exhibitors, such request to be noted in the application for exhibition.

ART. 10. In case any engineering work is needed in setting up or furnishing exhibits, the permission of the office of the chief commissioner is required for such work.

ART. 11. In case of machines, it is permissible for exhibitors to show the operation of such machines or the production of articles by means of such machines, and the task of working such machines and explaining their working must be undertaken by the exhibitors. The electric power needed for working such machines shall be supplied free of charge by the office of the chief commissioner.

ART. 12. The contract of sale of exhibits should be made by the exhibitors, but no exhibit, except such articles as may be produced in course of showing the working of a machine, may be removed from the exhibition before the final close of the exhibition without the permission of the office of the chief commissioner. The contracts of sale mentioned in the foregoing clause may, at the request of the exhibitors, be undertaken by the office of the chief commissioner, but this shall not apply in the case of articles produced in course of showing the working of a machine.

ART. 13. All exhibits should be removed from the exhibition within sixty days from the date of the closing of the exhibition. Exhibits not removed within the aforementioned space of time shall become the property of the Imperial Government.

ART. 14. All expenses connected with the packing and the transportation of exhibits to and from the exhibition shall be borne by the exhibitors.

ART. 15. The office of the chief commissioner shall not hold itself in any way responsible for the loss of or for damage done to exhibits, although it will take proper precautions against such loss or damage.

ART. 16. Exhibitors shall have no right to object to the photographing or sketching of their exhibits or to the printing of such photographs or sketches by the office of the chief commissioner.

ART. 17. No person shall be allowed to photograph or make sketches of any exhibit without the consent of the office of the chief commissioner. Any person wishing to photograph or make a sketch of any object or scene within the building must first procure the permission of the office of the chief commissioner.

ART. 18. In case of any exhibit which is considered particularly useful, a letter of thanks will be sent to the exhibitor.

ART. 19. Exhibitors are required to observe the rules established by the office of the chief commissioner, and to obey the orders of the said office.

N. B.—All exhibitors in the building in question will be entitled to special treatment in connection with the grant of patents, as provided in article 15 of the patent law, which says:

"Any person having an article which is to be exhibited at an exhibition or at a competitive show held by the Government or by a prefecture, who intends to make application for a patent therefor subsequently to exhibition, shall report his intention to the director of the patent bureau before exhibiting the same.

"In the case mentioned in the preceding clause, the application which has been made within six months from the day of the acceptance of the article at the exhibition or competitive show shall have the same validity as if it had been filed on the same day as the original report.

"If an international exhibition is held in a country belonging to the International Union for the Protection of Industrial Property, the period of priority allowed in that country for an application for a patent shall be valid in this Empire also."

The Imperial Government proposes to exempt exhibits for the Samples Building from the operation of the customs tariff, provided the articles be reexported within two months from the date upon which the exposition shall close. It will also negotiate for special freight facilities for all such exhibits.

The following are the general regulations for the Fifth National Industrial Exposition at Osaka, the first of which was held at Tokyo in 1877, the second at Tokyo in 1881, the third at Tokyo in 1890, and the fourth at Kyoto in 1896:

REGULATIONS FOR THE FIFTH NATIONAL INDUSTRIAL EXHIBITION.

Part I.—General regulations.

ARTICLE 1. The exhibition shall be established at Imamiya, Tennoji, Minami-ku, Osaka City, Osaka Prefecture, and the aquarium shall be established in the public gardens, Ohamadori, Sakai, Osaka Prefecture, and shall be opened from March 1 to July 31, 1903. The zoological gardens shall be opened from May 1 to May 15 and from May 26 to June 9 of the same year.

ART. 2. Articles to be exhibited are divided into ten general classes, as follows:

(1) Agriculture and horticulture.
(2) Forestry.
(3) Water products.
(4) Ores and metals.
(5) Chemical products.
(6) Dyeing and textile fabrics.
(7) Manufactures.
(8) Machinery.
(9) Education, science, sanitation, and economy.
(10) Fine arts.

ART. 3. Articles to be exhibited shall be arranged in eight different buildings, as follows (samples shall be arranged in a separate building erected for that purpose):

Agricultural and Horticultural Building, classes Nos. 1 and 2.
Water Products Building, class No. 3.
Industries Building, classes Nos. 4 to 7.
Machinery Building, class No. 8.
Educational Building, class No. 9.
Fine Arts Building, class No. 10.
Zoological Building.
Aquarium Building.

ART. 4. Articles shall be arranged after their class or group, in prefectural divisions, excepting those for the aquarium.

ART. 5. Machinery requiring motive power, or articles that can not be arranged according to the foregoing article, shall be arranged either inside or outside of the building, as the case may require.

The order of the prefectures shall be arranged by the office of the chief commissioner, according to their geographical position, as far as practicable.

ART. 6. The size of the space for arranging the exhibits shall be determined by the office of the chief commissioner and allotted among the different prefectures. The space shall, however, be increased in one lot and diminished in the other, as the circumstances may require.

ART. 7. The articles mentioned below shall be supplied to a certain extent by the office of the chief commissioner:

(1) Ladders and stools.
(2) Signboards for the prefectural divisions and for classification.
(3) Foundations necessary for exhibiting heavy articles.
(4) Awnings for sheds necessary for the arrangement of exhibits outside of the building.
(5) Motive power necessary for working the machinery.
(6) Food and feeding utensils for the animals during the time of exhibition.

ART. 8. The following expenses shall be borne by exhibitors:

(1) Expenses of packing and transporting the exhibits.
(2) Expenses of making stands or boxes for the exhibits.
(3) Shelves, cloths, or other ornamental materials required in arranging the exhibits.
(4) Expense of cleaning the exhibits and their surroundings.
(5) Expenses incurred outside of the exhibition.

ART. 9. The use of lights other than electric is prohibited in every building except the Machinery Building.

ART. 10. The office of the chief commissioner shall not be responsible for any loss of, or damage done to, the exhibits.

ART. 11. Contracts of sale of exhibits should be made by the exhibitors, but no exhibit, except such articles as may be produced in course of showing the working of a machine, may be removed from the exhibition before the final close of the exhibition.

ART. 12. Exhibitors shall have no right to object to the photographing or sketching of their exhibits, or to the printing of such photographs or sketches by the office of the chief commissioner.

ART. 13. No person shall be allowed to photograph or make sketches of any exhibit without the consent of the office of the chief commissioner.

Any person wishing to photograph or make a sketch of any object or scene within the buildings must first procure the permission of the office of the chief commissioner.

Part II.—Exhibits.

ART. 14. The exhibits shall be limited to those collected, produced, or manufactured by subjects of the Empire, subject to the list of classification made for that purpose.

The above article shall be applied to the exhibits collected, produced, or manufactured in the Empire by foreign residents.

ART. 15. The following articles should not be exhibited:

(1) Those once criticised at a national, international, or prefectural competitive exhibition.

(2) Those collected, produced, or manufactured prior to December, 1897, except animals, plants, or vegetables which require a certain time in growing.

(3) Cows or oxen born prior to December, 1896, and horses born prior to December, 1894.

(4) Those made by scholars.

(5) Those injurious to public morality or sanitation, or those which may injure other exhibits.

(6) Those not enumerated in the foregoing paragraphs and considered to be little worthy of exhibition.

ART. 16. An exhibitor should be one possessing the following qualifications:

(1) One whose business is to collect, produce, or manufacture the articles to be exhibited.

(2) One whose business is connected with the collection, production, or manufacture of the articles to be exhibited and who sells the same.

(3) One who collected, produced, or manufactured the exhibits under a special idea.

ART. 17. The exhibitor shall file his application with the governor of the prefecture, except in the case of articles mentioned in class 10 (fine arts) or those mentioned in article 18.

The governor of the prefecture shall, upon receipt of the application, make a list of the exhibits in duplicate, as per Form A, and transmit the same to the office of the chief commissioner, not later than the 30th of September, 1902.

ART. 18. Any person wishing to exhibit the following articles shall make application, setting forth the names of the articles, weight, space required in exhibiting, horsepower, etc., and transmit the same to the office of the chief commissioner through the local Government office not later than the 30th of June, 1902:

(1) Those of heavy weight and requiring a special foundation in setting up.

(2) Those requiring the machinery to be worked.

ART. 19. Accepted applicants shall transmit a detailed statement (Form C) to the local governor, who shall forward the same to the office of the chief commissioner not later than January 31, 1903.

ART. 20. Persons intending to exhibit articles of class 10 shall transmit an application (Form B) in duplicate to the office of the chief commissioner through the local governor, who shall forward the same to the office of the chief commissioner, together with a list of exhibits (Form A) in duplicate, not later than September 30, 1902. The local governor shall cause the exhibitor to forward the intended exhibits, together with a detailed statement (Form D), to the office of the chief commissioner between December 1, 1902, and January 31, 1903.

ART. 21. Should the office of the chief commissioner consider an exhibit to be contrary to the regulations or to be a counterfeit or imitation, it may either cancel the permission or cause the exhibit to be removed, even after the application has once been accepted.

ART. 22. Should some special vessel, stand, frame, border, or any other decoration be required for the exhibits, owing to the nature of the articles, it shall be prepared by the exhibitor.

ART. 23. Duplicates should be attached to such articles as may be damaged or destroyed at the time of the judgment.

ART. 24. All exhibits should be carried in and arranged between January 5 and February 20, 1903, and should be removed from the exhibition within thirty days from the final close of the exhibition.

Plants, fruits, vegetables, fish, or other objects that can not be kept in the exhibition for a long time may be exhibited during a certain fixed period, and may be removed from the exhibition after the judgment and with the permission of the office of the chief commissioner.

ART. 25. Horses should be brought in between April 25 and 30, 1903, and should be removed from the exhibition between May 16 and 20, 1903. All other animals should be brought in between May 21 and 25, and be removed between June 10 and 14; provided always, that should there be danger of contagious disease, they may either cease to be exhibited or be removed from the exhibition.

ART. 26. Exhibitors are not allowed to remove their exhibits without permission.

ART. 27. In case any engineering work is needed in setting up or furnishing the exhibits, the permission of the office of the chief commissioner is required for such work.

ART. 28. In the case of articles of explosive or self-ignitible nature, the cover only should be exhibited.

ART. 29. The exhibitor should at the time of exhibiting articles affix a ticket as per the following form:

Class..... Group..... No.....

Name of article.....

Name of exhibitor.....

Address.....

Place of production.....

Price.....

(If the article is not for sale, state so here; and, when sold, paste up a label marked "Sold.")

Should there be any person participating in the collection, production, or manufacture of the exhibit, the name of such person should appear with that of the exhibitor as collaborator.

When the cover only is exhibited, the price of the contents should be mentioned.

The name of the article should be mentioned in as ordinary terms as possible.

When Chinese characters are used, Japanese syllabic characters (kata-kana) should appear at the side of such characters.

ART. 30. When the article to be exhibited does not indicate its nature or its use or application, an explanation may be attached to it, or some other article may be exhibited in addition to the original.

ART. 31. The office of the chief commissioner shall have the right to change or alter the situation or surroundings of the exhibits or their ornaments.

ART. 32. Any articles considered to be unfit for exhibition, owing to their putrifying or melting, should be removed from the exhibition. Should the exhibitor not remove them himself, such articles shall be thrown away by the office of the chief commisioner; in such case, the exhibitor shall have no right to make claim for loss of any kind.

Any exhibitor who has been instructed to remove an article from the exhibition according to the preceding clause may replace it by another article of the same kind.

ART. 33. Any person who desires to change or alter the price of an exhibit should so report to the office of the chief commissioner.

ART. 34. The protection of exhibits and the contract for their sale shall be undertaken by the exhibitor.

ART. 35. When the contract for sale is made, a label "Sold" should be pasted on the ticket.

ART. 36. When the contract for the sale of an exhibit is made, the group, name, quantity, and price of the articles sold should be reported weekly to the office of the chief commissioner.

ART. 37. No person shall be allowed to object to the decision of the office of the chief commissioner as to the acceptance of an application for exhibits, change of the group, or any other matter relating to the exhibits.

ART. 38. All correspondence from the exhibitor to the office of the chief commissioner should be transmitted through the local Government office or local committee, except in the special cases fixed in the regulations or in matters requiring urgent attention.

Part III.—Exhibits on view.

ART. 39. The exhibits will be on view every day between 8 a. m. and 5 p. m., subject to alteration or suspension, as the case may require.

ART. 40. The visitors should deliver the admission tickets to the gate keeper. Children under 5 years old shall be free.

ART. 41. The admission ticket shall be 5 sen (2½ cents) each for the main buildings and 3 sen (1½ cents) for the aquarium. On Sundays and national holidays, each visitor must have two tickets to enter.

ART. 42. Visitors are not allowed to touch the exhibits without the consent of the guard.

ART. 43. No insane, intoxicated, or disorderly person shall be admitted, and any such shall be sent away from the exhibition.

Part IV.—Judgment.

ART. 44. Judgment shall be made on all exhibits between the day of opening of the exhibition and June 10, except on those mentioned as follows:

(1) Articles exhibited by the Government offices.

(2) Those described in article 24, clause 2, and exhibited later than June 10.

ART. 45. The exhibitor shall have no right to object to the judgment of the exhibits.

ART. 46. Duplicate articles may be demanded from the exhibitor when necessary for judgment.

ART. 47. When necessary, the judge may at any time inspect the place of collection, production, or manufacture. In this case, the exhibitor shall have no right to object to such inspection.

ART. 48. Exhibitors shall have no right to make claim on account of loss or damage (wholly or partly) done to the exhibits or to any other article or articles produced for the purpose of judgment.

ART. 49. Exhibitors shall have no right to object to the judgment or award, nor to refuse to accept the award given.

Part V.—Awards.

ART. 50. Awards shall be given to exhibitors for articles of superior quality. When one person is entitled to several awards, one of the higher grades shall be given, and for the rest certificates only shall be given.

ART. 51. Awards fraudulently obtained, or given by mistake, shall be canceled.

ART. 52. Awards are divided into six grades:

(1) Gold medal of honor.
(2) Silver medal of honor.
(3) Silver medal of first grade.
(4) Shibu-ichi* medal of second grade.
(5) Copper medal of third grade.
(6) Diploma.

ART. 53. A diploma will be given to the person who participated in collecting, producing, or manufacturing the article for which the award has been given.

ART. 54. The ceremony of awarding medals or giving diplomas shall take place on July 1, 1903.

Form A.—List of articles to be exhibited.

Form B.—Application for exhibits of class 10.

Form C.—(1) Explanation of exhibits of agricultural and horticultural products.
(2) Explanation of exhibits of manufactured articles.
(3) Explanation of exhibits of animals.
(4) Explanation of exhibits of ores, earth, or stone.
(5) Explanation of exhibits of machinery or instruments.

Form D.—Explanation of exhibits of fine arts.

SAMUEL S. LYON,
Consul.

HIOGO (KOBÉ), *January 21, 1902.*

JAPANESE MINERAL PRODUCTS.

It is not generally known that Japan is rich in any minerals except copper, coal, and iron; yet she has furnished a considerable proportion of the world's supply of the precious metals. The following table shows the output of the mines of the country for 1900 (the latest data obtainable), as reported by the mining inspection boards to the Department of Agriculture and Commerce. The values given are computed by the average quotations in the Osaka market.

*Alloy of copper and silver.

Description.	Quantity.	Value.
Gold.....tons...	2.3369	$1,410,390
Silver.....do.....	6.4686	1,163,606
Antimony .....do.....	477.6513	60,680
Manganese.....do.....	17,589.684	81,189
Coal.....do.....	7,429,457	12,242,353
Kerosene .....hhd...	571,906	966,872
Copper .....tons...	28,121.568	8,108,629
Lead .....do.....	208.72	162,113
Tin.....do.....	13.67	5,882
Iron.....do.....	27,602	475,732
Total		24,677,446

GOLD.

The amount of gold seems small in comparison with the output of what are known as the gold-producing countries, and yet Japan was one of the countries whose fabulous wealth aroused the cupidity of Western nations in the time of Columbus, and Mr. Watarn Watanabe, a Japanese mining engineer, is authority for the statement that during more than one hundred and sixty years previous to 1776 Japan annually exported 1,600 pounds avoirdupois of gold and an equal value of silver. The country is now producing one and one-third times as much as the exports of the period referred to, although the mines, with one exception, are still worked by the wasteful system of a century ago; and Mr. Watanabe thinks that by employing proper methods there should be no difficulty in placing Japan among the gold-producing countries. He says:

> Gold veins are very well distributed throughout the country, from Hokkaido in the north to the farthest end of Kiushu in the south. Comparing the areas of other gold-producing countries with that of Japan, and computing the amount of the subterranean treasure from the respective areas, this country must be called an excellent gold field.

Some new mines, recently discovered in Kiushu, are said to be very extensive.

COAL.

The value of the coal mined in Japan is almost equal to that of all other minerals combined. It is found in many regions, but the most important mines are in Hokkaido, the most northerly of the large islands, and several adjacent islets. It varies from the hardest anthracite to peat, but the quality is usually inferior to that of American coal. Modern machinery and methods have been introduced in the operation of many mines. Trans-Pacific steamers regularly coal at the ports of Japan; the coal is exported to Singapore, Hongkong, and Korea; and the increase of railways, gas works, and machinery creates a growing demand for this product within

the islands. The industry is mostly in the hands of the natives, although foreigners are permitted to own shares in some of the mining companies.

PETROLEUM.

Boring for petroleum is an industry of very recent date in Japan, and lack of experience and imperfect machinery have hitherto interfered seriously with its success. Echigo, a province on the western coast about midway between the northern and southern extremities of the main island, has produced all except a very insignificant part of the oil thus far procured from native sources; but recent discoveries have given an impetus to this branch of mining in other parts of the Empire, and active preparations for boring are under way in a district in the northeast. Indications promising excellent returns have been observed in the northern island also, and it is reported that American and European companies have been formed to exploit that region. Improvements are being made in the methods of procuring the oil and transporting it to the refineries in the province of Echigo, and it has been proposed to construct a pipe line from the mines to Tokyo, 200 miles distant. The Empire furnishes a market for much more than the present flow, thousands of cases of kerosene being annually imported from Russia and the United States.

IRON.

Iron mines, believed to be very rich, exist in the principal island of the Empire, but they are still very imperfectly developed, owing to the lack of capital and experience. The arts and industries practiced by the Japanese before the advent of the foreigner made little use of this metal, and it is only during very recent years that the people have begun to appreciate the value of their iron mines. The tardiness of private capital in undertaking the development of the iron industry caused the Government to take action in the matter, and in March, 1892, experts were placed on a committee which had been appointed by the Diet, to make a thorough investigation of the iron-ore beds, the process of smelting, and the organization of a foundry. The report was very favorable, and the appropriation requested for initial experiments was approved. Alterations in the specifications, resulting from an examination of the iron industry in Europe and America, made it necessary to ask for additional appropriations, and these were still further increased by the necessity for improving a harbor in connection with the works, thus involving a total outlay of $11,500,000. The preparations were completed, and the establishment began practical work last April.

The Japanese Imperial Railway Department has been in successful operation for several years, and has manufactured some fine

engines, which are in use on the Government Railway and other lines. Shipbuilding is also freely encouraged, and a Japanese company has secured contracts for the construction of several American vessels, all of which will tend to add impetus to the lagging industry of the iron mines.

COPPER.

Copper, which was freely used in the arts of old Japan, has been mined in the country from very early times, and in the seventeenth century, when the trade with Holland increased so much that the supply of gold and silver was no longer adequate to settle the balance of trade, copper was substituted and gladly received by the Dutch traders, who carried away from 720 to 1,200 tons of copper annually. It still forms an important article of export, and the investment of capital in modern appliances resulted in more than doubling the value of the exports of copper from 1890 to 1900, again illustrating the superior efficiency of machinery as compared with cheap labor. The mines at Ashiwo, about 100 miles from Tokyo, are among the oldest in the country, and in 1885, under the primitive methods then used, yielded 3,000 tons of copper per year. They are still worked, and have lately occasioned much difficulty by reason of the poisonous fumes rising from the smelters and the injury to farms from the overflow of the drainage. Large tracts of farm land have been rendered unfit for tillage or habitation by this poisonous refuse, but so far the earnest appeals of the sufferers have fallen upon unsympathetic ears.

E. C. BELLOWS,
Consul-General.

YOKOHAMA, *January 31, 1902.*

WINDOW-GLASS MANUFACTURE IN JAPAN.

Minister Buck, of Tokyo, sends, under date of February 4, 1902, copy of a report made by Mr. Wilson, secretary of legation, in reply to an inquiry* as to the promotion of window-glass manufacture in Japan:

After some discussion in the Japanese Diet in regard to the promotion of window-glass manufacture in Japan, the Government has decided to establish at the industrial experiment station a model factory, or technical school, for training workers in window-glass manufacture. Japan affords the necessary materials for this industry and the cheap labor, but lacks the skilled artisans necessary to make it a success. All of the window glass now used in Japan is imported and the market is an increasing one, since it is used for

* Made by a resident of Pennsylvania, who has received the original.

buildings of both foreign and Japanese style. The importation of window glass in 1899 was valued at 1,250,000 yen ($625,500). Belgium furnishes the greater part of this import. It is estimated that a box of glass which now costs, imported, 7 to 10 yen ($3.49 to $4.98) would, if made in Japan, cost about 5½ yen ($2.75). It is expected that the factory, for which money will probably be appropriated at the next session of the Diet, will be working in a year, and in the course of two or three years will be able to supply enough skilled Japanese artisans to carry on the work in private factories. In the meantime, one or two Japanese have been sent to Germany to study the art; but it is probable that foreigners will be employed to teach methods, assist in the selection of machines, and in other arrangements for the plant. An American applicant for employment as an expert in glass making should apply through the Japanese legation at Washington, presenting his credentials and recommendations.

AMERICAN BICYCLES IN FORMOSA.*

The bicycle best suited to Formosa's requirements is one that will come up to the following specification:

Model.—While men's wheels are generally preferred, it is worth while to note that Chinese male riders do not object to a lady's wheel; in fact, many prefer it, as it is possible with the latter to wear the characteristic long coat. Therefore, if there is an advantage in price, dealers who cater to the Chinese trade will usually permit a portion of their order to be for this model wheel. This does not apply to Japanese, however, the majority of whom have adopted foreign dress and therefore desire men's wheels. The social laws of China act as a barrier to the women of that nation riding a bicycle; and in Japan, while there are no social laws that prevent it, the general feeling among women is that it would be unladylike to engage in the sport. Japan, however, is a land of social revolution, and it is not unlikely that the wheel will in time be adopted by this sex. As evidence of this, there are at present a dozen or so high-class Japanese young ladies in Tokyo who ride, and they have organized a cycling club, to the astonishment of, I might say, the whole nation; but from the comments of the Japanese press, the innovation was as a rule favorably received by the men and the use of the bicycle generally advocated. The Japanese young lady has but little of the physical strength of her Western sister, and the moderate use of the wheel would doubtless be a very beneficial form of exercise.

*In reply to inquiries by a New York company, which has received advance copy.

Size.—Japanese and Chinese, who are practically the only customers for bicycles in Formosa, will average somewhat under foreigners in height. Consequently, a 22-inch frame is the most suitable; in fact, dealers will not accept 24-inch frames.

Equipment.—The double-tube tire seems to be the only one suited to Formosa. Single tires have not given satisfaction here, for the reason that a really bad puncture can not be repaired without recourse to a repair shop, and there is, unfortunately, no such establishment in Formosa. Furthermore, owing to the tropical heat, the rubber packing in the tire valves frequently softens and renders the valve useless, and when this occurs they have sometimes to be replaced. With the ordinary single tube, the valve can not be taken out; thus the double tire is preferable on this score also. The Formosan customer looks more to the tire than to the frame, and the few high-priced wheels with single tires which have come into the island have been sold at a loss. All wheels should be equipped with brakes. A San Francisco dealer, in forwarding to the island a shipment of wheels which were to be equipped with brakes, wrote the local merchant that "as the use of brakes had been practically given up in San Francisco" he had taken the liberty of canceling that item in the order. The unfortunate Formosan dealer had to hold these wheels in stock for four months until brakes could be obtained from America and fitted on. The Formosan rider is but little concerned with the "fashion in San Francisco," and he does not consider a bicycle complete unless it is provided with a brake. Although adjustable handle bars do not permit of a very perfect adjustment of the handle-bar brake, these bars are desirable, as the rider can place the handles in the position which best suits him. If adjustable bars can not be supplied, the turned-up handle bars, such as are used on ladies' machines, are preferable. The gear should be medium—say, seventy-three.

Price.—With a duty of 25 per cent and excessive freight rates, the so-called high-grade wheels are too expensive for this market. A good, strong wheel, with brake and double tires, selling in 2-dozen lots at, say, $15 to $16 a wheel would receive a warm welcome, and even at $17 or $18 there would be some demand. These need not necessarily be 1902 models; wheels of the 1900 model, and made by comparatively unknown manufacturers, would be quite as satisfactory for this market.

I would be pleased to learn of any machines that will comply with the above requirements, and will place the information received before the local dealers most interested.

JAMES W. DAVIDSON,
Consul.

TAMSUI, *February 11, 1902.*

No 260—02——3

COTTON SOCKS AND RUBBER SHOES IN CHINA.

American exporters should bear in mind that the Chinese market, for manufactured articles especially, is entirely different from the markets of other parts of the world. For instance, they must not expect to find here a ready sale for wares such as are used extensively by European nations. The Chinese are not consumers of household goods, articles of clothing, and many other staple commodities in demand elsewhere. The sale of such goods in this country is confined to a small number of resident Europeans and Americans. To secure any large amount of Chinese trade, therefore, it is essential to cater to the tastes and wants of the Chinese people. There is not, at present, a wide range of manufactured articles that are likely to sell well in China, but there is evidence of the gradual introduction of foreign goods in considerable quantities. For instance, cotton socks and rubber shoes meet with a ready sale in this district. There has been a growing demand for both these articles in recent years, and they are coming to be regarded as necessities. The poorer classes in southern China have in the past worn nothing on their feet and most of them still go barefooted. There is, however, an increasing tendency to wear cotton socks and rubber shoes, which is likely to cause a large demand for both articles in the future. They are now supplied by English and German manufacturers, principally the latter.

The socks are made of white cotton, and cheap grades are mostly used. They sell at about $1 Mexican per dozen, or about 4 cents per pair in United States currency. This is the wholesale price. The qualities worn by the middle class of Chinese sell at from $4 to $5 Mexican (about $1.96 to $2.55 gold) per dozen. Lisle-thread socks bring from $7 to $8 ($3.43 to $3.93 gold) per dozen. There will be an almost unlimited market for the sale of cotton socks in China as they come to be more and more worn, and American manufacturers should compete for a share of this trade. At present, however, it would appear that they do not even desire to supply the demands of the Chinese in the United States, for it is a fact that white cotton socks made in Germany are occasionally exported from Hongkong to San Francisco for the Chinese residents of that city.

The rubber shoes sold in southern China are similar to those manufactured in the United States, except that they are slightly heavier and are shaped like a native shoe. They are worn without stockings, are of comparatively recent introduction, but are likely to come into general use. They are made in Germany mostly, though some come from England. The cheapest variety costs about $1

Mexican (49 cents gold) per pair at retail, while the best quality sells for about $1.50 Mexican (73.5 cents).

The trade in these two articles is not, perhaps, of sufficient value in itself to greatly interest American manufacturers, yet they should try to gain it. Germany and England overlook none of these opportunities, and the Chinese people should be given a chance to compare American wares with those of other countries.

W. A. RUBLEE,
Consul-General.

HONGKONG, *December 28, 1901.*

TRADE CONDITIONS IN SINGAPORE.

After nearly a year of close observation here, I am prompted to write of the urgent need of American business agents in Singapore, if our exporters expect to gain a fair share of this trade. British and German houses have agents constantly on the spot, and we must imitate the methods by which they have won control of oriental trade.

Of the exports from this consular district last year, valued at $274,454,820* silver ($134,482,860 gold), 9.8 per cent went to the United States, while of $325,251,448 ($159,373,210) imports, only one-half of 1 per cent came from our country. Thus it is seen that Americans purchase in this market nearly twenty times the value of what they sell. This inequality is entirely due to want of representation of American interests.

With exports from the Pacific coast, Europe should not be able to compete, for our Pacific coast is 5,000 miles nearer the 550,000,000 buyers in Japan, Korea, China, Siam, and Polynesia than are our European competitors for such trade. Our rivals have also to pay the enormous tolls of the Suez Canal before they can land a cargo in the Orient. At present, these tolls—8s., or $1.95, per ton—are more than one-half the gross freight from Singapore to New York. Exports of tin, gambier, rubber, gutta-percha, copra, coffee, spices, etc., can thus be put into the American manufacturer's hands at $5 per ton less than the price paid by the manufacturer of Europe. Our manufacturers should not fail to take advantage of these conditions.

O. F. WILLIAMS,
Consul-General.

SINGAPORE, *January 31, 1902.*

*Taking the value of the Mexican dollar in 1900 at 49 cents in United States currency.

MANUFACTURE OF AFRIDI-WAX CLOTH, OR ROGHAN, IN INDIA.

Afridi-wax cloth, or cotton fabric embossed in colors, has been manufactured in India almost from time immemorial. It is a well-known product of certain native workshops in Peshawer, Lahore, Calcutta, and Bombay, and a favorite material for the Afridi woman's costume.

Until recent investigation, complete ignorance prevailed, outside the circle of native artisans at Peshawer, as to the production of this strange cloth and the manufacture of the still more mysterious Afridi wax, or roghan. In fact, little has been written upon the subject, and practically every statement made may safely be said to be inaccurate. For centuries, the manufacture of Peshawer roghan has been kept a trade secret and has puzzled all inquirers into Indian industries. Dr. George Watt, of Calcutta, the distinguished reporter on economic products to the government of India, however, has succeeded in inducing the Afridi-wax cloth workers to give up the secret of their craft.

During a visit of Dr. Watt to one of the manufactories of roghan, in the town of Peshawer, on the Afghan frontier, he picked up a few seeds which were recognized as that of the wild safflower, the plant known to botanists as *Carthamus oxyacantha*, which grows plentifully over the arid tracts of northern India. This incident led to the discovery that roghan was made from the oil of these seeds. There seem to be several species of the safflower, some of which are cultivated. One, in the northwest provinces, is grown purely for its flower, from which is manufactured the safflower dye of commerce; another, in the Bombay presidency, for its oil-yielding seed, from which *kusum*, or *carthamus*, oil is procured. Just how the varieties of the safflower differ I am unable to state, but at Peshawer, apparently the one place where the process of manufacturing Afridi-wax cloth has been known, the seeds of the wild safflower only are used.

The oil is extracted by what is known as the "cold process." The seeds of the wild safflower are first gathered and husked and then are pressed in an ordinary mill. They yield, it is claimed, about 25 per cent of a clear, yellow, thin oil, which burns with much less heat than most oils. The product is also used for culinary purposes, and is said to be an ingredient of macassar hair oil.

The oil contained in the seed of the wild safflower is called "polli," and, after extraction by the cold process, is placed in earthen

vessels and boiled continuously for twelve hours. The vessels are so arranged (in mud fireplaces) that it is impossible for the fire to come in contact with the boiling liquid, which emits volumes of a white pungent vapor, so exceedingly disagreeable that the manufacturers of this article in the town of Peshawer are compelled to conduct their business, under special license, in a place assigned them outside municipal limits. When the oil has been cooked to the required extent, the whole is immediately thrown into large, shallow trays containing cold water. Under this treatment, it swells up into a thick, jelly-like substance known as "roghan," and in that condition is stored in old kerosene-oil cans until required by the manufacturers of the Afridi-wax cloth. It is shipped in these cans to the Afridi-wax cloth workers in Lahore, Delhi, Bombay, and Calcutta.

Roghan, before being applied to the cloth, is mixed with some mineral color and drawn out into fine threads by means of a pointed style, with which the pattern is traced. The operators, who are invariably Afridis, attain a very high degree of skill and possess marked artistic abilities. The wax cloth in the costume of an Afridi woman would tip the scales at over 13 pounds. But, while its weight renders it unsuitable for articles of European dress, there is an ever-increasing demand for the cloth for household drapings. Careful tests show also that as a waterproof material, in the manufacture of linoleum, as a lubricant for leather, and as a powerful cement for glass and stone ware, it is most valuable. As a cement, the cemented parts can not again be separated except by the application of turpentine. Systematically exploited, there would appear to be a promising future for this industry.

I inclose herewith two specimens of Afridi-wax cloth, showing the pattern used in costumes and the decoration of curtains.*

WM. THOS. FEE,
Consul.

BOMBAY, *January 7, 1902.*

RAILWAYS IN SIAM.

The great highways of Siam have from remote time been her three splendid rivers, which penetrate the country to its northern boundary and with their numerous tributaries bring its several plains into communication with the sea. To these natural highways, in later years, were added the canals that intersect the alluvial plains of the south in every direction, making a vast network of water ways thousands of miles in length and varying in size.

*Filed in the Bureau of Foreign Commerce, where they may be examined by parties interested.

Over these plains, hundreds of miles in extent, whose level lies below that of the highest tide, roads were unknown, except the jungle path or the elevated ridge of the little dykes that separate the rice fields one from another, alike impassable during the rainy season. A people to whom the water ways furnished at once the ever-necessary means of irrigating their rice fields, a never-failing supply of fish, the luxury of the family bath at the evening hour, their daily water supply, and the means of easy access to the neighbor and the market, were naturally slow to recognize the need of other highways.

About twenty years ago, the movement for streets in Bangkok was taken up and now the city has over 100 miles of fairly well metaled driveways. Still more recent has been the movement for improved roadways throughout rural districts, and although some advance has been made in this direction, there are few ways outside the city of Bangkok that are worthy the name of roads as yet.

About ten years ago, the first effort toward railway construction was made. This resulted in the Paknam Railroad, which was opened to traffic in the year 1893. This road is owned by a local stock company and is under Danish control. It has a capital of 300,000 ticals ($150,000) and is about 27 kilometers (16.7 miles) in length. It runs between the capital city of Bangkok and Paknam, a flourishing village at the mouth of the River Menam, at which all vessels stop on the way in and out of the port of Bangkok. The business of the road has been good from the first, and it is now paying about 7 per cent on the investment.

In 1892, the Government began the construction of the Korat Railway, a line extending from Bangkok to Korat, a good-sized city northeast of the capital. This road was formally opened in December, 1900, at which time the work was completed the entire distance of 165 kilometers (102.5 miles), although traffic had been carried on over the western end of the route as the line was developed. This, the first experiment on the part of the Government in railroad building, has cost the country heavily in life and in money. The road will compare favorably with some of our cheaper light roads, both in construction and equipment. The country through which it runs is in part a rich alluvial plain which improved facilities for market will develop into a valuable rice-producing and grazing area. Besides this, the Korat hill region may develop minerals, and some valuable woods are found there. The road for 65 kilometers (40.3 miles), to the old capital of Ayuthia, follows the Menam River; for this distance it has to compete with the river traffic. In other sections, it is brought into competition with the canals of the country.

From the Korat line, 92 kilometers (57.1 miles) northeast from

Bangkok, another line branches to the north, known at present as the Lopburi road. This line, at present completed some 42 kilometers (26.1 miles), to the city of Lopburi, will be extended in time to Chiengmai, a distance of 600 kilometers (372.8 miles). The surveys are completed, the work of construction is under way, and the department expects that in two and a half years the road will be in running order as far as Paknampo, an important station on the river, 100 kilometers (62.1 miles) north of Lopburi. The preliminary survey has been done, and the permanent survey is now being prosecuted as far as Chiengmai. The director-general is at present absent on a three months' trip for the purpose of locating a pass through the mountain range north of Chiengmai and looking out a route to Chiengsen, the extreme northern boundary of the country, 200 kilometers (124.2 miles) from Chiengmai. This gentleman is sanguine that the road will be completed to Chiengmai within six or eight years, and will advise its extension to Chiengsen in the immediate future. It will pass through some rich agricultural regions, will probably open up valuable mineral lands, and will penetrate the great timber sections of the country. On the other hand, it will have the river to compete with almost its entire length, and this will no doubt at all times monopolize the timber traffic. As a political measure, the road will no doubt prove a wise investment, and will do much for the commercial development of the country as well.

The supplies are on hand, the surveys completed, and the construction is being pushed on a narrow-gauge road that will run from Bangkok southwest to Pechaburee, a distance of 152 kilometers (94.4 miles). This is also under Government control. The region through which it will run is one of the richest in Siam, and it will pass through several good-sized cities. It is expected that this road will be in running order by January, 1903, and, if well managed, it should pay a fair per cent on the investment from the first.

The preliminary surveys are also being made on another Government line, which it is proposed to run east and south from Bangkok through Patriew and Bangplasoi to Srimaharacha, on the coast, about 140 kilometers (86.9 miles) distant. This road will in part, perhaps for 90 kilometers (55.9 miles), drain a rich and well-populated region. For the rest of the way it will skirt the gulf coast, and it is expected that by providing Bangkok with easy access to the seashore (a thing of which this city stands in dire need during the unhealthy season), resorts and homes will be built up along the line and a large passenger traffic developed. Just how long the line will be in building can not yet be determined, but, inasmuch as the terminus is the seaside residence of the Queen and is becoming a popular resort

for other members of the royal household, the probabilities are that the line will be pushed to early completion.

Besides these Government lines, there have been two private concessions for railroads recently granted to Siamese. One of these lines will extend from Taurua, a station on the Lopburi line, to Prabat, a distance of about 17 kilometers (10.5 miles). Prabat is a Mecca for Buddhism, to which many thousands of the faithful make a yearly pilgrimage to worship at the shrine of the sacred footprint of the great prophet. This is a narrow-gauge line, and will probably be finished within a year. It passes through a promising agricultural section of the country, and it is proposed to extend the line, as trade develops, into the region beyond Prabat, which is rich in minerals and forests.

The other line, beginning at Bangkok, will extend southwest through one of the richest and most thickly populated sections of Siam and find its terminus at the mouth of the Tatien River. The money for this venture has already been raised in Bangkok, and the company is under Siamese control. This is also a narrow-gauge road, and will be in running order in less than two years.

This, in brief, is the history of railroads in Siam and her present railroad programme. Thus far, it has been her endeavor to keep her railroads in her own hands. During the ten years of her railroad history, the Government has spent $16,000,000 Mexican (about $8,000,000 gold) in this endeavor. Under the present management, which has always insisted on buying supplies in a closed market, railroads have proved poor financiering for the little Kingdom, if one is to judge by her Government reports. By the most favorable showing possible, made by the department in its last annual report, the railroads of Siam are paying about 1 per cent. In the financial adviser's report for the same year, the position is taken that this is altogether too sanguine a statement, and an actual loss is shown. Siam is paying dearly for her first experience in railway building. The courage she has shown deserves better things. The opinion is gaining ground that the present method is a decided mistake, and a change is being looked for. The only private railroad in operation in the country is now paying 7 per cent, and at times it has paid a much higher rate. With the open tender, which would grant to the department the same right that is exercised by the private corporation—to buy in the world's market wherever terms can be found most favorable for Siam—there is every reason to believe that a long step would be taken toward making the larger Government plants pay as well as the smaller private venture.

If something is not done to improve the management of railroads

of Siam, her finance department will advise the Government to turn toward other means of developing the country.

Of this, the producers of America can be assured: Whatever her railroad development may be, until a radical change is made, Siam's trade in railroad supplies is as effectually closed to the American market as it would be were her ports closed against us.

HAMILTON KING,
Consul-General.

BANGKOK, *December 16, 1901.*

THE BAGDAD RAILWAY.

Consul Ravndal writes from Beirut, February 10, 1902:

Referring to my report under the above title (ADVANCE SHEETS OF CONSULAR REPORTS, No. 1219, December 20, 1901),* I now beg to submit in translation an official statement which appeared in the Gazetteer of the vilayet of Beirut on the 8th instant:

An imperial irade has been issued definitely granting the concession for the Bagdad Railroad to the Anatolia Railroad Company. It is well known that this grand undertaking tends, under the high auspices of His Imperial Majesty the Sultan, to promote the moral and material welfare of Asia Minor and the Arabian Peninsula. It will divert the conveyance of large quantities of articles of trade from the Suez Canal to Turkish soil. Beginning at Konieh and passing through the plains and mountains of Caramania, the new line will cross the Taurus chain, reaching Adana and Mersine after considerable engineering difficulties. From this point, the line will branch off to Aleppo and the Euphrates and terminate at Bassorah after passing Mossoul, Bagdad, and Carbola. The length of this line is 2,500 kilometers (1,553 miles) and the duration of the concession ninety-nine years. By means of this route, there will be regular and rapid communication between the Sea of Marmora and the Persian Gulf for both passengers and freight, and new facilities for the mails from and to India and the Far East.

Consul Jewett, of Sivas, under date of February 5, submits the following additional details:

The definite plans for the first section must be submitted for the approval of the Government within eighteen months from the date of the firman; work must be commenced within the next three months, and the whole line be ready for traffic within eight years. The Government guaranty is fixed at 16,500 francs ($3,185) per kilometer (0.6214 mile) per annum, of which the sum of 4,500 francs ($869) is for working expenses. In case the kilometric receipts exceed 16,500 francs ($3,185), the surplus up to 22,000 francs ($4,246) shall go to the Government, and any surplus over 22,000 francs ($4,246) shall be divided between the Government and the company

*CONSULAR REPORTS No. 257.

in the proportion of 60 and 40 per cent. The revenues to be assigned to meet the guaranty will be administered by the Ottoman public debt, and the accomplishment of the stipulations is conditional upon an agreement about the revenues to be thus assigned. The Ourfa branch, of 30 kilometers (18.6 miles), alone has no guaranty, and its receipts will belong exclusively to the company.

The railway will be of the normal gauge of 1.44 meters (4.7 feet) with a single line, but the expropriations will be made in view of its being eventually doubled. The new line will be built in such a way as to allow the use of fast trains covering the distance between Constantinople and Bagdad in fifty-five hours.

The concessionnaires engage—in consideration of the payment of 8,000,000 francs ($1,544,000) in annuities of 360,000 francs ($69,480)—to strengthen the Haida-Pasha-Eskir Sher-Konieh line so that it may bear the strain of similarly rapid trains. To the company is reserved the preference on equal conditions over all other applicants for seven branch lines, viz, to Marash, Aintab, Beredjik, Mardine, Erbil, Diala, and Hit.

No revenue, it is reported, has yet been assigned to meet the kilometric guaranty. This point remains to be settled by further negotiations. It is only in the far future that the new road may hope to earn the amounts guaranteed. The Russian Financial Messenger publishes an official communication which says that the Anatolian Railway Company proposes to offer 40 per cent of its capital to French or Belgian subscribers and a like amount to Russian subscribers. It is not probable that Russia will aid a railroad which will be a rival to her own projected roads and will bring the wheat of Mesopotamia into competition with Russian wheat, and with American wheat also.

POSSIBILITIES FOR AMERICAN COAL IN SMYRNA.

There are practically no coal mines in Turkey, and 99 per cent of all the coal used here is imported from England. Reports from the larger markets of Europe show that American coal is gaining ground in competition with the English product; there is no reason why this should not be the case in Turkey. Important arrivals of American coal are noted in France, Italy, and Russia, whereas none has appeared in Turkey. Possibly, the principal obstacle in the way of introducing American coal into this country has been the affiliation of native coal merchants with English exporters. This can be readily overcome by applying to merchants who have not hitherto been identified with the coal trade and who can be easily induced to arrange for sample shipments.

The use of coal in Turkey is steadily increasing, through the construction of railways from Smyrna, Constantinople, Mersine, etc., into the interior of Asiatic Turkey, and from Constantinople, Salonica, and Dedagatch into European Turkey. New shipping lines are giving more attention to Turkish ports and are generally in need of coal upon arrival at Smyrna and other ports of the Levant. Coal is also used for industrial purposes in limited amounts. The coal contracts of the Ottoman Gas Company expire next June, and that company would be glad to experiment with a sample of American coal. In general, Cardiff and Newcastle coal is preferred in Smyrna, but pure Cardiff is rarely found. The kinds more often brought are Nautyglo and Griffen, from Newport mines. The best quality of Nautyglo corresponds to Cardiff coal; Griffen coal, a lower grade, is especially used by locomotives. According to specifications of the railway companies, the coal must be of fresh extraction and contain only traces of sulphur. Fifty per cent of each cargo must consist of large lumps, and the amount of dust must not exceed 15 per cent.

The annual consumption of coal in Smyrna and vicinity is about 150,000 tons, of which 80,000 tons are taken by steamers, 30,000 tons by railways, and 40,000 tons by the Ottoman Gas Company and other industries. The actual price c. i. f. Smyrna for Nautyglo coal, which is largely mixed with Griffen and sold under the name of Cardiff, is 22s. to 23s. ($5.34 to $5.58) per ton. The present favorable freight rates make it possible for American coal producers to lay their coal c. i. f. Smyrna at from 2s. to 3s. (48 to 73 cents) under the cost of English coal, and this is sufficient reduction to induce local consumers to give it a trial. Cargoes can be unloaded directly on wharf or by lighter. Return cargoes can frequently be picked up. If samples or analyses, with quotations, are addressed to me, they will be delivered to local consumers.

RUFUS W. LANE,
Consul.

SMYRNA, *January 27, 1902.*

COTTON FABRICS AND YARNS IN EASTERN TURKEY.

There is a growing desire in the markets of Harput and neighborhood for American cotton fabrics. Prints, calicoes, drills, sheetings, etc., of good quality should all find a steady market, as prices now rule. Much dissatisfaction is expressed at the inferior quality of the European cottonades which reach Harput.

There are several local merchants anxious to secure the representation of American houses manufacturing durable goods and

employing fast colors. I would advise such houses to send to the commercial exhibit of this consulate samples of fabrics that they have found by experience to be suited to the markets of this part of the Orient, together with agents' rates and conditions. Samples half a yard in length would be sufficient.

While the native weaving of cotton cloth is steadily diminishing, the production is still large enough to consume a considerable amount of thread. Although the culture of cotton is widespread in Anatolia, but little is spun by machinery outside of the vilayet of Adana. Local looms are supplied with yarn partly from Tarsus and partly from England. Frequent inquiries are made at this consulate as to whether American manufacturers of yarn desire to enter this market. I would be glad to receive from houses seeking to establish relations with this section agents' rates and conditions, and cards of samples. The colors should be fast and thoroughly reliable. Much disappointment has followed trials with foreign yarns, on account of the fugitive nature of the dyes employed.

Sample cards with a variety of colors should show clearly the sizes of the different numbers. Details as to the number of skeins in a package, the weight of packages, etc., should be so full that it will be easy to estimate the cost of ocean freight and of land transportation for large shipments.

This consulate* will gladly facilitate in every way the entrance of our cotton products into this region.

THOMAS H. NORTON,

HARPUT, *January 6, 1902.* *Consul.*

GERMAN ENTERPRISE IN PALESTINE.

During the past decade, Palestine has shown unmistakable signs of progress, much of which is to be attributed to German enterprise. German colonists, merchants, and horticulturists are awakening that part of the Levant from a lethargy of a thousand years. Three years ago, a German bank was established in Jerusalem, with a branch in Yafa, which exchanged $15,000,000 in 1901. The waters of the Dead Sea, where no rudder had been seen for centuries, are now being plied by German motor boats. A direct line of communication has thus been opened up between Jerusalem and Kerak, the ancient capital of the Land of Moab, which still commands the caravan routes leading across the Arabian Desert. There is no doubt but German enterprise will also exploit the phosphate fields

*Post-office address, Mezreh, Mamouret-ul-Aziz, Turkey in Asia.

situated on both sides of the Jordan* when transportation facilities shall have been sufficiently developed to insure success to the undertaking.

For many years, Germany has been looking to Asia Minor and other countries adjacent to Palestine as suitable territories in which to develop German markets. The Bagdad Railroad, which will lead through Anatolia, intersecting the head waters of the Tigris and Euphrates, to the shores of the Persian Gulf, is an enterprise of vast importance, not only to Germany, as the promoter, and the Turkish Empire, but to the world at large. It is the greatest commercial and civilizing factor that could be introduced into this region, and will tap the rich territories which composed ancient Mesopotamia. Apart from new avenues of commerce, a land will be opened up to students and tourists which, owing to expense and unsafe methods of travel, has thus far been practically inaccessible.

The great plain of the Hauran—the granary of Syria—forms the "hinterland," or back country, of Palestine. The railroad from Beirut to Damascus is said to be in financial difficulties. Twelve months ago, the German consul at Damascus, in a report to his Government, advised his countrymen to buy, not only this railroad, but the unfinished Haifa-Damascus Railroad as well. Were Germany to acquire these lines and connect them with a railroad running from Damascus to some point on the projected Bagdad route, she would be in a position to practically monopolize the trade of Palestine and Asia Minor.

The commerce of Palestine to-day is not unimportant. The products of the country are wheat, barley, oranges, oil, wine, nuts, figs, apples, peaches, pears, pomegranates, apricots, citrons, almonds, cucumbers, lettuce, onions, wild artichokes and asparagus, truffles, tobacco, sesame, and silk, while potatoes and other European and American vegetables are being introduced by German and French colonists.

ERNEST L. HARRIS,
Consular Agent.

EIBENSTOCK, *January 22, 1902.*

TRADE AND COMMERCE IN ABYSSINIA.

Interest in the opening of Abyssinia to modern civilization has been increased of late by pending legislation in the French Chamber, the purpose of which is to guarantee the shares in the partially completed railroad from Djibouti, the French port in Africa, opposite Aden, to Addis-Ababa, the capital of the Abyssinian Empire. It has been feared that without this support the control of the line would

*See CONSULAR REPORTS No. 253, p. 195; ADVANCE SHEETS No. 1106.

pass into English hands and result in the construction of a spur from the main line to the British port of Zeila, in Somali, and the possible diversion of the expected traffic from the French to the British port. Thus far, the activity of the powers bidding for the support of Emperor Menelik has been along purely political lines. Representatives of Italy, France, Russia, and Great Britain are permanently established at the capital. Great Britain is presumed to have some concern for the control of rivers draining into the Nile, thereby assuring in a measure the distribution of water in Egypt. Russian and French interests are identical, and are assumed to be commercial, although the actual commerce developed by them has been inconsiderable. Italy has both commercial and political interests at stake. The Italian colony of Erythrea is bounded by the Abyssinian Empire, and a satisfactory trade is being built up. A capable representative of Italy, Captain Ciccodicola, has succeeded in eradicating much of the bitterness caused by the military operations of seven years ago, and is generally believed to have the confidence of the Emperor. He has striven intelligently to promote commercial exchanges with his country on purely business lines. The interests of the United States are probably greater than those of all the other powers combined, and its contingent interest is equally great; but these conditions are entirely due to the efforts of individual traders, all of them foreigners, who have found it advantageous to deal with American manufacturers, mainly of cottons.

This trade is dominated to a very large extent by a firm of Marseilles Greeks, Messrs. Livierato frères, 24 rue Colbert, Marseilles, who buy directly in the American market, having a house at 91 Wall street. They formerly bought in Manchester, but in recent years have found American wares cheaper and stronger. Mr. Hugues Le Roux, a French writer and traveler—who has recently returned from Abyssinia, where he was commissoned by the French Government to study the railroad and other economic questions, the Government paying 18,000 francs ($3,674) for this purpose—asserts that American cottons have secured such a hold upon the Empire as to actually constitute a monetary standard. In his address to the Marseilles Chamber of Commerce, he said:

> It may be asserted that the "Aboudjedide" of the United States, which carries the mark of the camel, and is made up into the togas, shirts, trousers, and tents of the people, serves in that country as a monetary standard. A piece of this material, 30 yards long, the average price of which is 4 thalers ($2)—generally sold to retail dealers in lots of 20 pieces—is a token by which Abyssinian coffee is purchased in the regions of production. The change in the price of American cottons has obliged Messrs. Livierato to increase in Abyssinia, as elsewhere, the price of a bale of this material serving as money. Immediately, the price of coffee rose at the five centers of production, but when the native farmers reached Harrar, expecting to sell their coffees at the higher price imposed by the increased value of

American cottons, they found themselves face to face with the falling prices which beset all the coffee markets in the world. Thus the equilibrium has been broken. In this way, the American cottons have enjoyed their day of commercial utility, and now weigh heavily upon the business market. The substitution of the steam railroad for the transport by camel will terminate these old-time errors. The hour is near when the active circulation of silver money will open the Empire of the Negus to real commerce and to the chances of a competition that will be more equitable in its practices.

What Mr. Le Roux means by "real commerce" and the "chances of a competition that will be more equitable in its practices" is a displacement of American cottons by those of French manufacture. However, Messrs. Livierato have informed me that his statement is an exaggeration, and that in fact the old Austrian Maria Theresa thaler continues the medium of exchange, and is the coin with which their firm makes purchases.

Mr. Livierato says that at present shipments are made principally from New York directly to Aden, thence to Zeila or Djibouti, for transportation into the interior. Freight rates are very uncertain, and average from 8 to 9 Maria Theresa thalers (about $3.20 to $3.60) per camel. The railroad from Djibouti is now in operation to a distance of 207 kilometers (129 miles) from the coast, and it requires perhaps four days to journey from Djibouti to Harrar, the market town of Abyssinia, and thence to Addis-Ababa, about fifteen days more. Information on this point is very uncertain.

Agriculture is carried on in a very primitive fashion, and my informant is of the opinion that a market for American implements can not be developed until the completion of the railroad. The concession for this railroad was granted March 9, 1894, for a period of ninety-nine years. It is exclusive in its terms, and was granted originally to Messrs. Ilg & Chéfneux, the former a Swiss gentleman who acts as Prime Minister of the Emperor. The concession also conveys to the company 1 kilometer (0.62137 mile) of land on both sides of the track throughout its length, and the right to a tax of 10 per cent upon all merchandise imported into the country and shipped over the lines. The company may use or neglect this latter privilege, according to its wishes and needs. The only control of the freight rates to be charged is that they shall not exceed the actual tariff for transportation by camel.

The demand for Abyssinian coffee, which much resembles that of Arabia, has yet to be created in the United States, although Livierato frères export from Aden large quantities of Arabian coffee. The Abyssinian coffee is exported principally to England, and the crop of the Empire amounts, perhaps, to 50,000 bags annually. Connoisseurs regard it as the equal of Mocha.

Harrar, the commercial emporium of the Empire, requires 100,000

"masses" of glass pearls per annum, and the merchant of gewgaws is the most important retailer of the city. Next in rank comes the cloth merchant. The women wear a costume of red and blue cloth, "similar to that of virgins in stained-glass windows," the material being imported from British India, although Germany is now endeavoring to secure this trade. The muslin scarfs which envelop the head, and are tied at the waist, are supplied from Manchester; and the satin bands worn by the Mussulman women round the bottoms of the trousers are supplied by France, Switzerland, China, and Japan. Printed cotton handkerchiefs used as a headdress come from England, as do also the white figured cottons of which the well-to-do make their shirts. The small shopkeepers are said by Mr. Hugues Le Roux to be supported by Jewish or Arabian bankers at Aden, and the commerce of the country is practically monopolized by Livierato frères, of Marseilles, and two Indian houses—Mohamed Ali and Tab-ali-ak-Barali, of Bombay.

Europeans are also interested in the reports of rich placer gold mines. Mr. Livierato says that a concession has recently been given to an English company, but information respecting it is lacking. Details respecting placer-mining machinery required in the Empire, or other commercial facts, might probably be obtained from Jean Gérolimate, who is Messrs. Livierato's representative in Harrar. I translate from Mr. Hugues Le Roux's report of his journey, just published, the following extracts with respect to gold discoveries:

> The Dedjaz-Ghebregzyer said to me: "Seek some brook in this region, and you find there many men who appear to be fishing, but in reality it is nuggets of gold that they search." I therefore asked to be taken to the nearest river, which happened to be the torrential stream of Karsa. At the first ford, I found myself confronted by a native who was so occupied with his researches that I was able to take a photograph of him at his task. The proceeding is very simple: The gold seeker enters the water with a sort of wooden basin. He stoops, buries his basin in the sand of the river, and then turns it at an angle, so that the water and sand seek the hollowed portion of the basin, which is steadily turned in such manner that the sand and earth are washed away and the heavier particles of gold rest in the lowest point of the basin, from which they are subsequently removed. The gold seeker mounts slowly toward the head of the stream, plunging his basin into the earth every three or four steps, always repeating the operation. A more scientific method of proceeding has been adopted by a Frenchman, Monsieur Camboul, who, in the remote portions of Abyssinia where the placer streams are found, has erected a laboratory and carefully collected samples from all the different rocks in the vicinity. Thus far, however, nothing has been done as to developing this territory, except in the primitive manner heretofore described.

Mr. Le Roux himself satisfied his curiosity, digging in the shadow of one of the rocks brought to light by Mr. Camboul, and he describes a fragment of rock broken off by himself, which had the aspect of a piece of rusty iron. In fine parallel lines the points

of gold were clearly visible. In another fragment of what is called "the rich yellow rock," the points of gold had the size of the head of a pin, and were pressed together very closely. The rock itself had much the color of ivory.

The market for the gold-producing region of Abyssinia is at Nedjo. Gold washers bring the metal in dust and nuggets from all corners of the country, pressed into large quills closed with a morsel of wood. The holders are so transparent that the precious powder is as easily visible as though it were in a tube of glass. The washer sells the product to a broker, who works it into circles of pure gold of about the thickness of a heavy finger ring. These circles are not closed, so that the buyer may twist them before weighing, thus assuring himself, upon finding them malleable, that no copper has been mixed with the pure metal. These brokers sit bent over, in long files, with their small scales in their hands. Market rates vary from day to day. On April 13, 1901, 31 thalers silver were exchangeable for 1 thaler gold. This was the rate of exchange at which Mr. Le Roux's servants were able to transact business. But when he himself undertook to convert silver into gold, under the pretext that he was a foreigner and desired to weigh with his own scales, he was required to pay 33 thalers in place of 31.

ROBERT P. SKINNER,
Consul-General.

MARSEILLES, *February 12, 1902.*

ROADS AND TRANSPORT SYSTEMS IN MADAGASCAR.

Ever since the definite conquest of Madagascar by the French in the year 1895, the absorbing economic question has been the creation of a railway joining the coast with the capital, Antananarivo, or Tananarivo, as it is now more frequently called.* Madagascar is one of the most irregularly mountainous countries in the world, not in the sense of altitude, but in the mass of irregular upheavals which cover the whole island, up to the very coast line. The term "plateau," applied to the central part of the island, must not be taken in its literal meaning. There can hardly be said to exist in Madagascar a plain of sufficient dimensions to be called by that name. It was this impenetrability of their country which prompted the Hovas for so long a period to oppose by inertia the inroads of the white man. But this is past history now; the French gained control in 1895, and the great problem to be solved since then has been the creation of roads to transport men and goods to the capital.

* Tananarive is the French spelling.

The expedition from the west coast, which had been thought to afford the most practicable route for an army, proved by its disastrous episodes—costing the lives of 9,000 men—that, after all, the eastern side offered the best means of approach to the interior, and plans for a railway have since been directed to that side. Successive companies failed to accomplish the work; plans were modified and remodified; labor was done here and there in disconnected patches; but a definite line of action seems to have been taken for the completion of the enterprises. General Gallieni has already made a railway in Tonkin and one in Dahomey, and to his enthusiasm must be attributed the vigor perceptible throughout the work here.

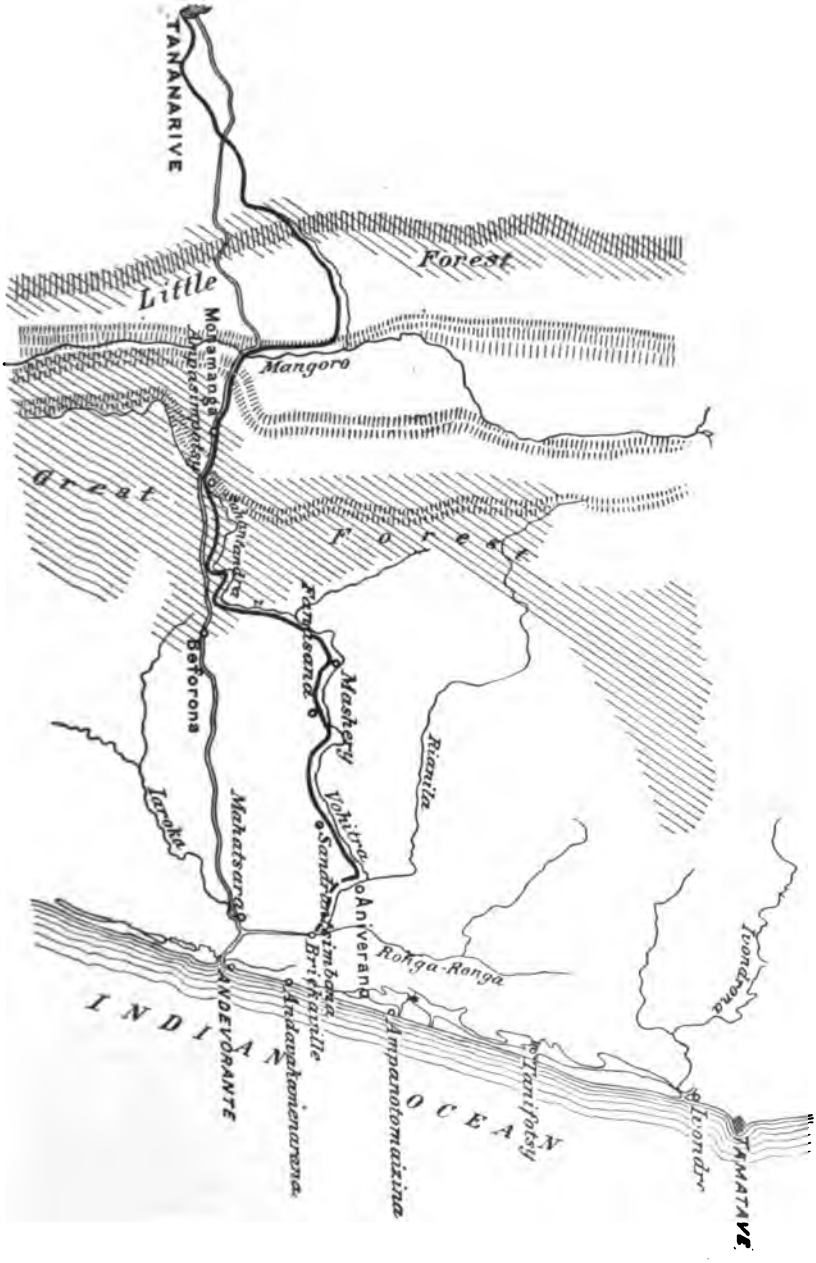
I have recently traveled to the capital by the new roads and by new means of locomotion, and have visited the different sections of the railway in progress. I give herewith a sketch, taken from the official map of the district, and offer some explanations of the road and the nature of the work.

This map shows the two eastern ports of Tamatave and Andevorante, 60 miles apart, with four intermediate towns of minor importance. All along this coast is a series of lagoons, which have been connected by artificial canals, so that a water way is now open from Ivondro, 8 miles south of Tamatave, and connected therewith by a railway, as far as Andevorante, where it turns into the River Iaroka and follows that stream, with the option a few miles farther up of turning to the left to Mahatsara, the head of the macadamized road, shown by a double line, or to Brickaville, which is the first depot of the railway, delineated by a heavy, black line.

The water way formed by connecting the lagoons has not been a very successful undertaking, as the lagoons are of different depths, so that the connecting canals produce currents, one lake at the expense of another, which thus becomes too shallow, etc., and involves elaborate dredging. This work has been done by a separate company, and its results indicate that it would have been preferable to construct a railway along this coast.

The newly completed macadamized road, which has in the main followed the old native track, is undoubtedly a remarkable piece of engineering. The gradients nowhere exceed the limits of safe locomotion by carts, carriages, bicycles, or automobiles. This road is just 150 miles long in its circuitous track, though under 100 miles as the crow flies.

In constructing the railway, the contract seems to have stipulated that no Malagasy labor was to be employed. This has meant successive importations of Italians (who revolted and had to be sent home at Government expense), coolies from China, and Indians. The last have suffered great mortality from the attacks of fleas,


TANANARIVE
Little
Forest
Mangoro
great
forest
Beforona
Mahatsara
Mashery
Vohitra
Sandrakatsimbazaza
Brickaville
Aniverano
Rongà-Ronga
Ivondro
Ampanotomaizina
Tamatave
INDIAN
OCEAN

introduced in the last few years by the Senegalese soldiers, which produce terrible sores and even mortification on the feet. All the material employed must of course be of French origin, brought by French citizens, and in French bottoms, and this has to be transported by sea from Tamatave to Andevorante, and then by river to the first depot of operations. What impressed me was the paucity of the inhabitants and lack of food produce along the road. It is estimated that ten years will elapse before the railway can be definitely opened. The part of the work now in progress is the easiest section; the problem will be the final climb over the edge of the Imerina plateau (so called), which means a sudden rise of 1,500 feet. This, as seen by the map, will be effected by an almost semicircular bend and a tunnel some half a mile in length, after which the final ride into the capital presents no features out of the ordinary.

TRANSPORT.

As, then, for some years to come the interior transport of the country will be by the macadamized road mentioned, the question of what will be the system of vehicular traffic has yet to be solved. Hitherto, goods have been transported on men's shoulders, one man carrying from 60 to 80 pounds. The first tentative departure from the old methods was a convoy of three American wagons, each carrying about 12 cwts. (*i. e.*, about fifteen men's loads), and drawn by four oxen, the journey occupying thirteen days from Mahatsara to Tananarivo, a distance, as mentioned, of 150 miles. Several small enterprises have followed, such as mule carts, ox carts, and push carts, but nothing has yet been established on a large scale. Passengers have now adopted the two-wheeled push cart, called here "pousse-pousse." Three men are employed for a vehicle carrying one person. The vehicle of the future, in my opinion, is the motor wagon; but owing to the gradients, the machine should not be of less than 25 horsepower, in which case the journey from the capital to Mahatsara could be effected in one day, and, as the water way from the latter place to Tamatave occupies just one day, this would be a great advance on anything yet attained. The only automobile yet introduced belongs to General Gallieni. The transport of mails alone between Tamatave and the capital cost last year $135,000, and there would seem to be a profitable opening for a service of four automobiles. These would immediately secure more freight than they could carry. In spite of the rule "everything must be French," red-tape obstacles vanish in the struggle for the survival of the fittest. I believe that Americans have a better chance of succeeding in an enterprise of this kind than any of the other foreign elements thus far on the scene.

THE CITY OF TANANARIVO.

Tananarivo (which in the vernacular means the "town of a thousand," alluding to the thousand Hovas who first garrisoned it) is an oblong city built on a granite rock like a huge hog's back, nearly 2 miles in length, standing among rice fields cultivated for centuries and irrigated with care. The villages as one approaches the capital reveal a complete change of race and a different mode of life from that seen among the tribes of the coast. The country houses are cubes of sun-dried bricks, with small apertures on the western sides, to avoid the east winds.

The foreign commerce of Tananarivo is carried on chiefly by the same firms that are established in Tamatave, and is almost confined to wholesale dealings in cottons. The population is dense, the climate relatively cool, and the people amenable to habits of cleanliness. No textile fabrics—except a few native lambas—are produced here, so that everything points to expansion in the cotton trade. The Hovas have adapted themselves to civilized customs and wear European clothing.

Perhaps no city of this size in the world is so lavishly endowed with churches, cathedrals, monasteries, chapels, schools, hospitals, etc., as is Tananarivo. There is a school of manual labor, where every branch of manufacture is taught, and many handsome specimens of work are shown.

As Tananarivo is built on a hill, locomotion is laborious. Round the base of the hill a magnificent esplanade, 12 miles in circumference, has been constructed, and this forms the city's broadway for carriages (of which only a very few exist), horses, and promenaders. Circulation over intermediate parts of the city must be made in filanjana, or chairs, the hire of which is regulated by a tariff, as with cabs at home; for, unless one be a trained athlete, walking is painful. A great many people use horses.

To the weekly market of Tananarivo the natives come from all directions, with every describable object for sale. The Hovas are essentially a race of barterers, and everything, according to them, is merchantable. The most scrupulous honesty is imperative. Formerly, any case of larceny was punished with immediate stoning to death. Now, of course, this barbarous custom is restrained by an efficient police force.

The salubrity of Tananarivo and the Imerina province in general is proverbial. The temperature never exceeds that of southern Europe. On the coast, essentially tropical conditions prevail.

WM. H. HUNT,

TAMATAVE, *December 4, 1901.* *Consul.*

AUSTRALASIAN GOLD PRODUCTION IN 1901.

The official figures of the gold production of Australasia for 1900 and 1901 are:

Colony.	1900.	1901.
	Ounces.	*Ounces.*
Western Australia	1,580,950	1,881,756
Queensland	951,456	816,592
Victoria	821,007	790,050
New South Wales	345,650	279,724
South Australia	24,086	31,000
Tasmania	81,125	79,000
Total for Commonwealth	3,804,274	3,878,122
New Zealand	373,616	455,559
Total for Australasia	4,177,890	4,333,681

The increased yields of West Australia and New Zealand bring the total nearly up to that of 1899. A comparison with previous years is appended:

Year.	Australia.	New Zealand.	Total for Australasia.
	Ounces.	*Ounces.*	*Ounces.*
1861	2,434,535	194,031	2,628,566
1871	1,857,028	730,029	2,587,057
1881	1,354,976	270,561	1,625,537
1891	1,411,469	251,996	1,663,465
1899	4,048,582	389,558	4,438,140
1900	3,804,274	373,616	4,177,890
1901	3,878,122	455,559	4,333,681

The probability is that Australasia will soon again head the list of the world's gold producers.

JOHN P. BRAY,
Consul-General.

MELBOURNE, *January 11, 1902.*

AUSTRALIAN TARIFF CHANGES.

Consul-General Bray sends from Melbourne, January 25, 1902, the following list of changes made in the Australian tariff* by the House of Representatives:

Division VI.—Metals and machinery.

Article.	Previous proposal.	New duty.
Moldboards, sheep-shearing machines, engines (portable) fixed on a locomotive boiler horizontally, with wheels and shaft suitable for transport, traction, and oil engines	*Per cent.* 15	*Per cent.* Free.
Horseshoe nails	(*)	Free.
Tanks containing goods, or empty	(†)	Free.
Boilers, pumps, machinery, n. e. i.	25	20
Screws, n. e. i.	25	Free.
Axles, springs	25	15
Mixed metal ware	25	15
Plated ware, including plated cutlery	25	20
Manufactures of metal, n. e. i.	25	20
Engines, n. e. i.	25	20
Cartridge cases, empty or capped, and wads	25	Free.
Rolled iron or steel beams, channels, joists, girders, columns, trough, and bridge iron or steel, not drilled or further manufactured; shafting, cold rolled, turned, or planished; also bolts and nuts	20	15
Barbed wire	20	10

*7s. ($1.70) per cwt. †3s. (73 cents) for every 100 gallons or part thereof.

BRAZILIAN TARIFF LAW FOR 1902.

Consul Furniss sends from Bahia, January 10, 1902, the following translation of such sections of the tariff law, passed by the Brazilian Congress December 23, 1901, and effective January 1, 1902, as he thinks of interest to American trade:

By article 2, the Executive is authorized to effect the following:

SECTION 2. To adopt a differential tariff up to 50 per cent in favor of one o. more imported articles in compensation for concessions to Brazilian products under the favored-nation treatment, or vice versa.

SEC. 5. To recover from vessels using the ports a duty of 1 to 5 reis (0.0005 to 0.0025 cent†) per kilogram (2.2 pounds) of merchandise loaded or discharged, to be expended in improvements of the respective ports.

(*a*) The proceeds of this duty, which shall be proportionate to the requirements of the service, shall constitute a special fund for each port, destined exclusively for the respective improvements.

(*b*) Goods transshipped from one vessel to another, owing to the first being of greater draft than is admitted within the zone comprised in the improvement, shall be exempt from this duty.

*The text of which appeared in ADVANCE SHEETS No. 1201; CONSULAR REPORTS No. 256.
†At present rate of exchange.

(*c*) To accelerate the execution of the works, the Government is authorized to accept donations or chargeable pecuniary assistance from the States, municipalities, or associations which may be benefited by the improvements, provided these charges do not exceed the proceeds of the above-mentioned duty.

SEC. 8. To exempt from duties all materials imported by the States or municipalities for the supply of water, the metallic material for drainage, road locomotives and rolling stock for traction on roads without rails, instruments and apparatus for professional and technical instruction imported by the State institutions and by the schools maintained by the Federal Government.

(*a*) All vessels and crafts exclusively employed in fishing and all apparatus, instruments, and articles imported for the service of the same and those for the preservation of fish shall be free from all taxes.

ARTICLE 4.

From the date of the present law, samples of all beverages and food stuffs imported must be submitted to the laboratory of analysis in the order of their arrival.

SECTION 1. The table of analysis shall be exclusively for the importer's use.

SEC. 2. In the event of wine being shipped in barrels of different sizes, the sample submitted to the laboratory shall be in proportion.

SEC. 3. After the payment of the proper tax by the importer, the national laboratory will commence the analysis within the following time:

Six working-days, maximum, for the analysis of the quality of wine, beer, cider, vinegar, bitters, vermuth, effervescent lemonade, mineral water, olive oil, liquors, and simple sirups.

Fifteen working-days, maximum, for the analysis of flours, alimentary pastes, tea, chocolate, curd, preserved meat, fish, milk, vegetables and fruit, oil for lubrication and for other industrial purposes, soaps, tissues, natural and artificial essences, and alloys of metals.

Thirty working-days, maximum, for the analysis of butter, lard, tallow, and all greasy products of a composite nature, cognac, rum, whisky, alcohol, and other strongly alcoholic substances and unenumerated products.

SEC. 4. The laboratory shall be obliged to furnish a certificate of the receipt of payment, fix the day and hour for the presentation of the receipt, and return the fee paid, in case the analysis has not been commenced within the stipulated time.

SEC. 5. If after the expiration of the specified time the laboratory should not have commenced or finished the analysis, the party shall be permitted to dispatch the goods, presenting the certificate mentioned in section 4 to the custom-house, which shall advise the Minister of Finance of the fact the same day.

SEC. 6. The time for the quantative analysis shall be fixed by the director of the laboratory, with a view to the maximum urgency.

SEC. 7. Quantative analysis of products suspected to contain noxious substances shall not be comprised in the terms mentioned, as it may be necessary to repeat the analysis on a fresh sample.

ARTICLE 6.

All agricultural implements and machinery imported direct by the planter shall be free from duty, as also all apparatus for the milk industry.

(*a*) The detailed dispatch of these articles shall be submitted direct to the Minister of Finance.

ARTICLE 8.

The 25 per cent of the duties payable in gold on imported merchandise, of which 5 per cent will continue to be reserved for the fund in guaranty of the currency shall be collected as heretofore.

UNITED STATES GLASSWARE IN BRAZIL.

Two years ago, I persuaded one of the principal dealers in glass and crockery here to order glass and china ware from the United States, and later I was informed that the venture had been quite successful and that he had established a profitable trade in those articles.

Yesterday, the most prominent dealer in that line in Rio called on me with the request that I should furnish him with addresses and catalogues of American glass factories, saying that since the other firm had introduced American goods a general demand had arisen for them, and he would be obliged to carry them. He said he thought there was a great future for them in Brazil.

If American houses will furnish me with catalogues, I shall be pleased to distribute them where they will do the most good. I would also suggest that similar catalogues be sent to the consuls in Pernambuco, Para, and Bahia, calling attention to the successful introduction of these wares in Rio. Manufacturers and dealers should bear in mind, however, that there is a demand for only the very best goods, particularly in imitation cut glass.

I can not emphasize too strongly that the utmost care should be exercised in packing these goods, in order to avoid great losses and inconvenience. All merchandise arriving here by steamer is discharged in lighters and is as a rule handled very roughly. A Rio firm which at my request ordered china ware in the United States complained repeatedly that the goods received were packed so badly that there was a loss of quite 50 per cent in breakage; while in the consignments from Europe there was hardly any loss of that kind, the packing being done with so much more care.

EUGENE SEEGER,
Consul-General.

RIO DE JANEIRO, *February 5, 1902.*

UNITED STATES SAFES IN BRAZIL.

Fire recently destroyed the establishment of Frank da Costa & Co. in this city. This firm is one of the largest exporters of rubber and other commodities in the Amazon Valley, and there were 43 tons of rubber in the building at the time, of which 28 tons were totally destroyed and 15 tons damaged.

The noteworthy feature of the fire was the fine showing made by American safes. There were in the offices of the company six safes: one English, one German, one French, one Portuguese, and two

of American manufacture. These were all placed together in the center of the second floor. After the fire, it was found that the Portuguese safe was a complete wreck and fell to pieces when touched. Its contents were totally destroyed, and the same was true of the French and German safes. The English safe contained, in addition to valuable books and papers, 700 contos in Brazilian currency, equivalent to about $175,000. This safe was opened only after the greatest difficulty, and the money was found in an almost unrecognizable, charred, and pulpy mass, and the remaining contents were a total loss. There is little hope of recovering anything of the money thus damaged by fire and water.

When the American safes were opened, their contents were found perfectly intact—money, books, and papers being little, if any, the worse for the ordeal through which they had passed.

There could not have been a more convincing illustration of the superior quality of the American product than was afforded by this incident, which has given rise to general comment.

Frank da Costa & Co. are about to purchase six new safes, and American producers of these articles would do well to make a bid for the contract. Until this occurrence, there was a popular impression among business men here that there was no safe equal to the English one, and this belief was so firmly established as to make competition on the part of American manufacturers difficult. The incident should establish a market for our safes throughout Brazil, if our manufacturers make the proper efforts to win the trade.

K. K. KENNEDAY,

PARA, *February 1, 1902.* *Consul.*

BRAZILIAN-CHILEAN TRADE.

From a special report by the Brazilian consul at Valparaiso and from recently published statistics, I have gathered the following facts in regard to the commerce between Brazil and Chile:

Chile desires that Brazil shall assist in subventioning a line of steamers which can serve the traffic between the two countries at reasonable rates; Brazil is anxious for tariff concessions that will favor her sugar and coffee. Negotiations on these subjects are now pending.

Imports into Brazil from Chile are very small. The principal item is beans, which amount to 1,000 tons a year, worth about $60,000 before duty is paid. The duty is, at present exchange, $18.70 a ton. This represents about half of Brazil's importation. Chile's other exports hither are insignificant, consisting of a little wheat, fruits,

forage, and drugs. In 1900, Chile's exports to Brazil were less than $200,000, and in 1901 they were still smaller.

Brazil's exports to Chile consist almost exclusively of coffee and Paraguayan tea (yerba mate). The amount of the former for 1901 is given at 30,000 sacks, worth about $250,000. No figures are given for the latter, but it may be estimated at $150,000.

The principal cause of the unsatisfactory condition of interchange between the two countries is believed to be the want of cheap transportation. The Pacific Mail Steamship Company and other lines to Europe, which have a monopoly of the regular Atlantic-borne traffic to Chile, stop at Brazilian ports, but their rates are arranged so as to discourage shipments between Brazil and Chile. It costs more to send goods from Valparaiso to Rio than from Valparaiso to Liverpool, and similar inequalities exist as to westward-bound freights. The result is that, though there is frequent and rapid communication, exchanges are almost nominal in amount; Brazil is able to furnish only 15 per cent of the coffee consumed in Chile, though to Europe and America she furnishes more than half their total consumption, and some of her coffee is actually reexported from Germany and England to Chile.

Wine is the Chilean product which, it is believed, can be most successfully introduced into Brazil; but this market is so thoroughly accustomed to the vintages of Portugal, France, and Italy that the importation of Chilean wine is problematical, even if greatly lower prices could be offered.

THOMAS C. DAWSON,
Secretary of Legation.

PETROPOLIS, *February 4, 1902.*

TRADE CONDITIONS IN CHILE.

Commerce between the United States and Chile has materially increased during the quarter ended December 31. Large shipments of American lumber have been received at the port of Valparaiso, large contracts for coal have been secured by American firms, trade in American paper has greatly increased, and orders for various other goods have been placed with United States houses. The present outlook for trade between the two Republics is more favorable than at any time in recent years.

A number of representatives of American firms have recently arrived in Valparaiso to solicit business for their respective companies, and in nearly every instance they have secured liberal orders.

Every mail from the United States brings to this consulate a large number of letters and catalogues from manufacturers and exporters. The catalogues are placed in the hands of local merchants

and importers and the business letters answered, giving the names of dealers who handle the line of goods represented. This plan keeps local merchants informed of the class, variety, and quality of goods offered by manufacturers and exporters in the United States. Many Valparaiso merchants also apply to the consulate for information concerning American goods.

In this connection, I wish to say that many American firms that go to the trouble and expense of writing to United States consuls and to merchants in foreign countries do not attach sufficient importance to their letters. In some instances, these communications are mimeograph copies, or are circular letters printed upon a poor quality of paper; in others, the signature of the writer is attached with a rubber stamp. As a rule, little attention is paid to such letters, the majority of which are promptly thrown into the waste-paper basket. Business letters addressed to merchants in foreign countries should be neatly and carefully prepared, and a good quality of stationery should be used. The signature should be written with a pen. It gives the prospective buyer a better impression of the house sending out the letters, and these will not only be read, but generally filed away for reference.

R. E. MANSFIELD,
Consul.

VALPARAISO, *January 1, 1902.*

OPERATIONS OF THE LIMA MINT FOR 1901.

Under date of February 8, 1902, Mr. Neill, secretary of the legation at Lima, transmits the following account of the operations of the Lima mint for 1901:

According to statistical data of the year 1901, the coinage of copper has been limited to changing 300,000 2-cent pieces into 600,000 1-cent pieces. The decree of April, 1897, put an end to the coinage of silver. The silver operations have been confined to the smelting of 300,000 soles ($145,800) into bars, which, exported, have been sold and the result imported into the country in pounds sterling. At the same time, to satisfy the demand for small coin, 152,000 soles ($73,872) have been reduced to fifths and dimes. The silver coin confiscated in the custom-houses, amounting to 1,473.50 soles ($716.36), has been smelted into bars. The important operations of the mint have been in gold. The number of ingots received for conversion into Peruvian pounds amounted to 231, with a gross weight of 642.24 kilograms (1,456 pounds), which gave 589.66 kilograms (1,300 pounds) of fine gold. The coining of this amount of gold, added to the small amount of uncoined gold in the mint in December, 1900, gave £81,255 ($395,427), exceeding the total coinage

of 1900 by £17,722 ($86,244). Over 95 per cent of the ingots received at the mint in 1901 is the product of Peruvian mines.

As the gross gold exports from Peru for 1901 are not yet known, it is not possible to figure the output of the mines; but considering the exports of 1900, those of 1901 may be fixed at approximately 2,000 kilograms (4,409 pounds). The production of the Inca Mining Company in Carabaya in 1901 has been noteworthy. The Chuquitambo Gold Mining Company, which owns claims near Cerro de Pasco, expects to be able to begin crushing with its powerful 40-stamp mill within three months.

DIAMOND FIELDS OF BRITISH GUIANA.

The outlook for the new diamond industry is very favorable. Up to date, stones valued at $50,000 at the custom-house have been exported. Ten men, at work for New York parties who located claims up the Mazaruni River a few months ago, recently collected in six weeks 8,227 small diamonds, weighing about 767 carats. The stones were valued at $9,600, and were shipped to New York.

Nearly every expedition that has gone up to the fields has found diamonds. It is not surprising, therefore, that local excitement is intense and that the discoveries have attracted the attention of the diamond interests of Europe and America. That the region is not overrun with prospectors at this time is due to the expense involved in outfitting, transporting, and providing for an expedition. It costs $1,000 to get eight men up to the diggings, including the necessary prospecting implements and subsistence and pay for three months.

The route from Georgetown is up the coast 20 miles and then by steamer to Bartica, 50 miles up the Essequibo River. From there to San-San-Kopai landing, about 1½ miles above Putareng Creek, on the left bank of the Mazaruni, the route is covered in small boats in the average time of fourteen days. The navigation of the river is difficult and dangerous, on account of cataracts and rapids, and skillful boatmen are necessary.

The principal diggings now being worked are 5 miles back from the river, and all provisions and supplies are carried there on the heads of laborers. Over 1,200 of these laborers registered at the local department of mines this month and left for Bartica. Many of this number were doubtless destined for the placer gold diggings of the Cuyuni and Puruni.

There are about a dozen companies now in the diamond district, and new expeditions are being fitted out almost daily. Capital and

mining experience will be needed to intelligently develop these fields and to provide adequate and safe communication with the seaboard.

Manufacturers of structural material should closely observe conditions here, with a view to supplying the machinery and electrical equipment which will be required.

I believe that now is a favorable time for anyone having capital and the inclination to invest it in a British colony, to consider the inviting features presented in the construction and operation of an electric or steam railway up the Mazaruni River to the heart of the mining district. Such an enterprise would be received locally with great favor. It has been discussed for a long time, in connection with the development of the gold mines, and it is generally understood that, in view of the exceedingly small margin of profit in the sugar industry of the colony and its gloomy prospects for the future, steps should at once be taken to facilitate access to the interior.

GEO. H. MOULTON,

DEMERARA, *January 28, 1902.* *Consul.*

ARBITRATION CONVENTION IN CENTRAL AMERICA.

The Department has received from Minister Merry, of San José, under date of February 9, 1902, copy and translation of the convention signed at Corinto, January 20, 1902, by the Executives of Nicaragua, Salvador, Honduras, and Costa Rica. The object of this convention is the maintenance of peace and the establishment of obligatory arbitration in the settlement of all difficulties and questions that may arise between the contracting parties. The tribunal of arbitration will consist of one member, with substitute, from each State, elected for one year. The arbitrators of the States among which there exists a disagreement shall not take part in the adjustment of the difficulty. In case of an equality of votes, the tribunal shall elect a third member from the substitutes, and judgment shall be given within five days after the presentation of the claims. Difficulties that may arise through questions of limits or through the interpretation or execution of treaties of limits shall be submitted by the Governments interested to foreign arbitration of American nationality. The presidency of the tribunal shall be held alternately by each one of the members, following the alphabetical order of the States represented, and the sessions of the tribunal shall be held in the capital of the State of the presiding officer. This convention shall be submitted as soon as possible to the ratification of the respective congresses, and shall enter into force thirty days after it

has been ratified by them all. The 15th of September of the current year—anniversary of the independence of Central America—is named for the installation of the arbitration tribunal. The signing Governments shall invite, jointly or separately, the Republic of Guatemala to adhere to this convention.

ELECTRICAL PROGRESS IN BRITISH HONDURAS.

An appropriation of $10,000 has been voted, the consent of the Home Government granted, the contract signed, and work has begun on the first telegraph line in this colony.

This line will extend from Belize to the Rio Hondo, a distance of 100 miles, and offices will be established at Belize, Corozal, Orange Walk, and the Hondo River, and at the last-mentioned place business will be transferred to the overland line through Mexico, and communication with the world will be completed.

Though Belize is only 850 miles from New Orleans, it has never had the benefit of telegraphic service, and a message from Europe or the United States, if forwarded on a given Thursday, could not be delivered here until ten days later, and any message would take at least four days, being sent from New Orleans by mail steamer.

It is proposed that a telephone service be established at each of the offices; and in order that one wire may serve both purposes, the circuit will be shut off for two hours each day, giving ample time for local business. As three months are all that are required to build the line, it may be assumed that by May 1, 1902, Belize will be in closer touch with the rest of the world.

A bill is now before the colonial councils extending authority to the district board of Belize to contract for the establishment of an electric-light plant in this town, and granting the contractor the privilege of lighting public and private houses. The bill will undoubtedly become a law, and the oil lamps of this town will soon be a thing of the past.

The equipment for the telegraph line has been ordered principally from New York, and the material for the lighting plant will also be ordered from the United States.

W. L. AVERY,
Consul.

BELIZE, *February 6, 1902.*

RAILWAY CONCESSION IN SALVADOR.

Under date of February 16, 1902, Consul-General Jenkins, of San Salvador, reports that a concession has been granted to Mr. José Cabezas Bonilla, of Costa Rica, for the completion of the railway from La Union to San Miguel, the construction of a line from San Miguel to San Salvador, and the construction of a pier of steel and iron in the port of La Union.

Mr. Jenkins incloses a copy of the Diario Oficial containing the terms of the contract, with translation of the same, summarized as follows:

The management binds itself to make necessary repairs on the part already constructed, to commence the work five months after the contract is declared legal, and to have it completed and open for traffic in fifteen months after commencing. The heaviest grades admissible shall not exceed 3½ per cent; the least radius of the curves shall be 85 meters (92.6 yards). Steel rails are to be used, and sleepers of good timber, preferably of the country. The motive power shall be steam, but electricity or any other motive power, except animal, may also be used, subject to the approval of the Government. The management also engages to construct and maintain in service a light-house adequate to the necessities of the port of La Union; also to construct a solid bridge over the Lempa River, so that pedestrians or horsemen may pass at the same time with trains, without danger. All bridges and viaducts shall be of steel and iron. Machinery, materials, and other articles necessary for the construction, operation, and maintenance of the railroad, pier, and light-house shall be imported free of all duties and imposts, detailed list of such orders having first been submitted to and approved by the Ministry of Finance. The regular service shall consist of two daily trains over the road, passing each other at a convenient point; the mail shall be carried free on the regular trains, and 50 per cent of the rate for ordinary traffic shall be deducted for the transportation of troops, supplies of war, telegraphic materials, civil employees on duty, and merchandise belonging to the Government. In time of war, the transportation of troops and supplies of war shall be free, and, at all times, the transportation of military on duty. The management shall be absolute owner and possessor of said railroad and its business for the term of seventy-five years, counting from the time of its completion, having a right to form a joint-stock company of limited liability, either in the country or abroad. The concession shall not be transferred to any foreign government. At the end of seventy-five years, the railroad, with all its property and business, shall become the property of the nation, and must be surrendered in perfect working condition. During the term of this concession, no other railroad shall be built from La Union to San Salvador in competition with or parallel to this line; the management shall have the right to project branches and to construct telegraph and telephone lines for its own exclusive use.

MEXICAN CONCESSION FOR STEAMSHIP LINE AND FISHERIES.

The Department has received from Ambassador Clayton, of Mexico, copy and translation of a concession for the establishment of steamship service between Mexican and Asiatic ports and for the exploitation of fisheries granted to Messrs. Tarpey & Bennett, American citizens, by the Mexican Government, December 17, 1901. The concessionnaires bind themselves to establish two lines of steamers—an ocean line for Asia and a coast line on the Pacific and Gulf of California; to grant to the Government free transportation of the mails, and rebates on the fares of federal employees and on Government freights. The Asiatic line shall make at least one round trip every four months, and the coast line a round trip every two months, between such points as shall be determined by the contract, which shall be forfeited if the lines shall not be established within the term of two years from the promulgation of the contract.

The zone conceded for the exploitation of fisheries lies in the Gulf of California and neighborhood. For oyster and abalone fishing, within the zones mentioned, the concessionnaires shall apply to the Department of Fomento for permits, presenting maps of the beds which they propose to exploit, fixing their location. The concessionnaires are obligated to return to the Government the beds, with all their improvements, without any right to indemnification, upon the expiration of the contract. The concessionnaires bind themselves to establish at least one fish cannery within the term of two years, and for that purpose may occupy gratuitously such vacant national lands as may be necessary. The rights acquired by private parties, all concessions in force, and the right to hunt and fish on a small scale by persons who live by these industries shall be respected by this contract. The duration of this contract shall be the same as that for the steamboat lines.

CANADIAN TARIFF CHANGES.

Consul-General Turner sends from Ottawa, February 18, 1902, a newspaper clipping re articles placed on the free list by an order in council passed February 17, as follows:

ARTICLES ENTERING INTO CERTAIN MANUFACTURE TO BE ADMITTED FREE.

By order in council, the following articles have been placed on the free list:
Hemp-bleaching compound for the manufacture of rope.
Silver tubing for the manufacture of silverware.
Steel for the manufacture of cutlery.

Yarn of jute, flax, or hemp, for the manufacture of towels.

Steel castings, in the rough, for the manufacture of scissors and hand shears.

All articles entering into the construction and forming part of cream separators. Separators have all along been admitted free.

The duty will be remitted on all materials used in the manufacture of machinery for beet-sugar factories. The machinery itself is already free of duty.

Under date of February 13, Mr. Turner sent a newspaper article referring to the reduction in the duty on paper, as follows:

The Government is satisfied that a combination exists among the manufacturers of printing paper in Canada, and, in order to bring about competition, has decided to reduce the duty on news print from 25 per cent to 15 per cent.

In April last, the Canadian Press Association represented to the Government that the price of printing paper was very much higher in Canada than in the United States, and offered, if given an opportunity, to prove that this advance was due to a combination or agreement among the paper manufacturers of Canada to keep up prices. This appeal of the newspaper publishers was based upon what is known as the anticombines clause of the tariff act of 1897. This clause provides that whenever the governor in council finds that the manufacturers of any article have formed a trust or an agreement to unduly enhance prices, the Government may obtain evidence and place such article on the free list, or so reduce the duty on it as to give to the public the benefit of reasonable competition.

Judge Taschereau, of Montreal, was appointed to make the inquiry, and after full investigation he reported to the Government last November sustaining the complaint of the Press Association. As a result, an order in council was passed yesterday to this effect:

"The customs duty on news printing paper, in sheets and rolls, including all printing paper valued at not more than 2¼ cents per pound, shall be reduced from 25 per cent to 15 per cent ad valorem."

Judge Taschereau, in his report to the Government, says that an agreement within the meanigg of the tariff act above quoted does exist. On February 21, 1900, the twenty-six manufacturers of paper in Canada formed an association. The agreement between the manufacturers embraces all sales in Canada and Newfoundland, but does not embrace paper exported out of the Dominion, with the exception of Newfoundland. The principal provision of the agreement binds the contracted parties not to sell goods at lower prices or on better conditions than those agreed upon.

Judge Taschereau concludes that this agreement constitutes an association which amounts to a combination. As to whether the combine resulted in unduly increasing prices, he finds the proof that it did so in the fact that in 1896 the price of rolled news print was $2.75 per 100 pounds; that the price fell steadily till November, 1899, when it was $2.03 to $2.10; when the association was formed, the price rose to $2.50. There was also a rise in the United States, but when prices fell there they were kept up in Canada. He declares that the present paper makers' combination is illegal, both by the express enactment of the customs tariff and by section 520 of the criminal code.

During the fiscal year 1901, there were imported into Canada 7,534,558 pounds of paper, more than double the quantity imported in 1900. The value was $356,086, and the duty paid thereon $80,566.

CANADIAN CUSTOMS FREE LIST ENLARGED.

The Canadian Government has recently transferred a number of articles heretofore dutiable to the free-import list, with a view to increasing their manufacture in this country. These articles, which will be admitted free only when imported by manufacturers for use in their own factories, are as follows:

Hemp-bleaching compound, for the manufacture of rope.

Silver tubing, for the manufacture of silverware.

Steel, for the manufacture of cutlery.

Yarn of jute, flax, or hemp, for the manufacture of towels.

Steel castings in the rough, for the manufacture of scissors and hand shears.

All articles entering into the construction and forming part of cream separators.

The reason for placing these articles on the free list is that their use will enable Canadian manufacturers to produce a better quality of goods.

An order in council has also been passed providing for the payment of a drawback of the duty on imported materials used in the manufacture of machinery and structural iron and steel for use in the construction and equipment of factories for the manufacture of sugar from beet root.

By an amendment to the tariff last session, provision was made for the free entry of such machinery and structural iron and steel, and the object of this order is to place the Canadian manufacturer of these articles in as good a position as his foreign competitors. The time for the free admission of such machinery and steel expires on April 1, 1902. It is provided that the drawback regulation referred to shall apply only in respect of machinery, and structural iron and steel manufactured and sold for bona fide use in the construction and equipment of factories for the manufacture of sugar from beet root, during the time when the imported machinery and structural iron and steel are exempt from customs duty.

The manufacturers of Canada are radical protectionists—that is, when protection is for their interests, but they are equally radical for free imports when such imports will be for their benefit. Under the present arrangement, they can import such machinery as they need free of duty, and in addition they are asking the provincial legislatures to exempt all their machinery from taxation.

The Dominion and provincial parliaments are ready at all times to give encouragement to the upbuilding of manufacturing industries in this country.

JOHN L. BITTINGER,
Consul-General.

MONTREAL, *February 27, 1902.*

WIRELESS TELEGRAPHY BETWEEN CANADA AND GREAT BRITAIN.

The Government of the Dominion of Canada has concluded an agreement with Signor G. Marconi for the establishment of the Marconi wireless process of transmitting messages between Canada and Great Britain. The agreement in detail is as follows:

(1) Marconi's Wireless Telegraph Company, Limited, agrees to erect two wireless telegraph stations—one in England and the other in Nova Scotia—the object of which, should the undertaking prove successful, is to carry on communication on a commercial basis between the Dominion and the United Kingdom of Great Britain and Ireland and the continent of Europe.

(2) The Canadian Government agrees to contribute to the company the sum of $80,000, or such lesser sum as may be required, for the purpose of the erection of a station at a point in Nova Scotia according to plans and specifications approved by G. Marconi—and should the cost be greater than $80,000, then the excess shall be paid by the company—payments to be made as the work progresses.

(3) The Canadian Government undertakes that all messages received by the company or intended for transmission by the company shall be sent over all Government lines of telegraph in Canada now in operation, or that may be hereafter constructed or operated by the Government, at rates not higher than those charged to others for commercial messages.

(4) If the company enter into any arrangement with companies operating telegraph lines in Canada as respects the division of rates on through messages, the company will not grant less favorable terms for all similar arrangements with the Government land lines.

(5) The company agrees that the rates to be charged for messages between Canada and the United Kingdom shall not in any case exceed the rates charged for similar messages between the United Kingdom and any other portion of North America.

(6) In consideration of the encouragement which it is proposed shall be given by the Canadian Government, the company will undertake, if its operations prove successful, as they fully expect them to, to transmit general messages to and fro between any station or stations which it may establish on the Atlantic coast of Canada for that purpose and any corresponding station on the coast of the United Kingdom at rates which should be fully 60 per cent less than the rates now charged for cablegrams between Canada and Great Britain; that is to say, that whereas the present rate per word for such general messages is 25 cents, the company will undertake to charge not more than 10 cents per word for such messages; the company further to agree that the Government messages for the press shall be transmitted at a rate not exceeding 5 cents per word.

(7) The company will, as far as possible, use Canadian machinery, material, and labor in the construction of the station in Nova Scotia.

(8) If the Government desire to use the Marconi system for communication with any of the light-houses or life-saving stations on the coast, or between the mainland and any island within the jurisdiction of Canada, or with any ships passing to and fro, or in any way to assist in its operations for the protection of life and property on the seacoast or inland waters of Canada, or for the improvement or assistance of navigation, the Government shall be free to erect all such stations as it may require for such purpose and the company shall be bound to furnish all machinery

and apparatus required for such stations at fair and reasonable prices, free from any charge for patent rights or royalties thereon, it being understood that the assistance hereby provided by the Government shall cover and include all charges for such patent rights or royalties.

(9) Such stations when established by the Government shall receive all messages sent by ships equipped with the Marconi system and deliver them to the connecting land lines without any charge, and the tolls for all such messages shall be collected by the agents of the company on board the ships from which they are sent and shall belong to the company. The Government shall be entitled to receive for its own use all tolls collected at its stations for messages transmitted to ships passing to and fro.

(10) Sections 8 and 9 shall be subject to the following conditions: That whereas certain arrangements have been made between the company and the corporation of Lloyds, in London, respecting transmission of messages from ships to stations on land, and whereas questions may arise respecting the right of the company to grant the privileges of such said sections to the Government without the consent of Lloyds, the company undertakes that, if necessary, it will use all reasonable efforts to bring about a friendly and satisfactory arrangement between the Government and the corporation to the end that the privileges provided in said sections 8 and 9 may be enjoyed by the Government; and if it be found that in consequence of such agreement between the company and the corporation the privileges provided in sections 8 and 9 can not be granted to the Government, then the sections shall be void, and in that case the sum to be contributed by the Government to the company toward the construction of its trans-Atlantic station in Nova Scotia shall be reduced from $80,000 to $50,000.

Any light-house or station maintained by the Government of Canada on the coast of Newfoundland shall be deemed, for the purpose of this agreement, to be a part of Canada, and all privileges which the company is bound to grant to the Government in Canada shall extend to such light-houses and stations, in so far as the company has the power to grant them at such places.

Signor Marconi is expected to arrive in Canada early in March, when the erection of the station in Nova Scotia will begin without delay.

JOHN L. BITTINGER,
Consul-General.

MONTREAL, *February 28, 1902.*

BRITISH VS. AMERICAN METHODS OF CONSTRUCTION.

Supplementary to the current discussion of American commercial and industrial methods, as compared with those of England, a rather remarkable article, from the pen of Mr. D. N. Dunlop, appears in to-day's issue of the Nottingham Guardian. While it relates primarily to the construction of the Westinghouse Electric Works at Manchester, questions are involved which affect the entire industrial situation of Great Britain. The article reads, in part:

The recent achievement of the British Westinghouse Company at Manchester has caused heart searching in the building and electric trades. It is now a little more than two years since the Westinghouse Company decided to establish works

for the manufacture of electrical apparatus in this country. The works are designed on a magnificent scale, but the most remarkable thing about them is the way in which the building has been accomplished. One hundred and thirty acres of ground are covered by the various buildings, and 10,000,000 bricks had to be laid. When the work was begun in the spring of 1901, it was estimated by British builders that the building operations alone, quite apart from the installation of machinery, would occupy several years, and estimates in work of this kind proverbially take an optimistic view not borne out by subsequent events. The Westinghouse Company, however, had no mind to waste time and their shareholders' money on lengthy preliminaries. They engaged Mr. James C. Stewart, a contractor of St. Louis, Pittsburg, and New Orleans, as building manager; and Mr. Stewart, with half a dozen young assistants from the other side of the water and 3,758 British workmen, achieved what every onlooker, prophet, or critic would have dismissed from serious consideration as an absolute impossibility. He established an average of 1,800 bricks per man in a nine-hour day, with a maximum of 2,500 bricks per day for the plainest work.

How was it done? is the question which at once arises. It is certain that Mr. Stewart left no legitimate device untried, and no less certain that he had every detail of the work absolutely under his control. Daily reports from all the foremen and subforemen were handed in to him, and men who were not up to the work were not kept on. During the third week of operations, the average had risen to 900 bricks per man per day, and by the continuous process of weeding out the idle and useless, the high standard of 1,800 bricks was gradually approached. The trades union did not allow the "new methods" to proceed in silence, and once or twice it looked as if trouble might be in the air. In every case, however, matters were smoothed out without having recourse to unpleasant proceedings. Managers and delegates met amicably enough, and the officials of the company, with that strength of purpose and energy the want of which in the British employer of the last two generations has been so deplorable, made it perfectly clear that while they would pay their workmen not only the standard union wage, but an even higher wage than the union required—11d. (22 cents) an hour instead of 10d. (20 cents)—they meant to manage their own business and would not brook interference from outsiders. If these terms were not acceptable, means would be found of dispensing with the good offices of the union and its members. The result was peace with honor.

This remarkable feat is all the more interesting that it comes at a critical moment in our industrial history, when the bricklaying capacity of the British workmen is being most unfavorably contrasted with the capacity of workmen in other countries, and furnishes the original premise from which a logical, if depressing, chain of arguments deduces the approaching decline of the Empire. A writer in the Times of November last placed the recognized limit for dwelling houses, shops, and business premises built by a private contractor at 400 bricks per man per day; the limit in the case of public buildings he quoted much lower—330 bricks per nine-hour day. This computation was not allowed to pass unchallenged, but careful inquiries establish the fact that the number of bricks per man per day is considerably less than it was twelve to fifteen years ago, though rather greater than two or three years ago.

At the Westinghouse Works, there was no wasting of time, no loafing, smoking, or gossiping, neither was there any bullying or harrying of the workmen. Mr. Stewart obtained with British labor results that are absolutely unique in the records of British industry. The methods were characterized by a dash and energy unfortunately not now regarded as typical of this country. But what has been done can and will be done again. At least, we have positive proof that there is in the British workman that stuff that will successfully build up a great enterprise if he be

properly directed and adequately supervised. The great buildings are completed; the work for which they have been provided remains to be done. While the building was going on, a number of young British engineers in the employ of the company were sent to the machine shops at Pittsburg for further training. A leading northern daily waves away with scorn the "damaging and humiliating" inference that British engineers have any need to learn in the United States, and prefers to suppose that these men have been sent out in order to familiarize themselves with the "peculiarities of American machine-shop practice," and "with methods and ideas which, if not better than our own, are different, and have to be studied on the spot."

The inference may be damaging; it is nevertheless one which, with the premises before us, we can hardly fail to draw. The British engineer may have his trade at his fingers' ends; it is possible that, from a technical point of view, he has nothing more to learn. At the same time, it is important for this great new industry that he should familiarize himself with these "methods, different from our own," since they produce results which do not seem to be within the reach of any methods at present known to British business men. The manufacture of electric apparatus in these buildings will be carried on on new lines, though successfully tried in the United States. The enterprise is one of the first stages on our return journey to that front place in the industrial world which we have temporarily lost. A frank avowal that our methods are capable of improvement and must be greatly altered and improved is the first necessity.

In commenting upon this, the Guardian says, editorially:

If it is a fact that bricklayers can lay 1,800 bricks per day, but that they persistently refuse to lay more than 330 or 400, we can not be surprised that the cost of building has increased so much within recent years and that it has become so difficult to get building work done within a reasonable time. If it be true that the "go-easy" principle is carried to this length in the building trade, we may safely assume that it exists in other industries, and we have an explanation at once of the reason why British products are being ousted from the markets by the products of Germany and America. It is only fair to wait to see what there is to be said on the other side; but the article on the erection of the British Westinghouse Works constitutes a damaging indictment of British trade methods, and it ought to be answered, if an answer be possible.

S. C. MCFARLAND,

NOTTINGHAM, *February 17, 1902.* *Consul.*

A TURBINE YACHT IN SCOTLAND.

Up to the present time, the turbine has been applied to only four vessels by European shipbuilders—first to the torpedo-boat destroyer *Turbina*, then to the destroyers *Viper* and *Cobra*, belonging to the British navy, and, lastly, to the passenger steamer *King Edward*, which was finished on the Clyde in July, 1901, and used as an excursion boat between Glasgow and Campbelltown during the summer. This vessel is 250 feet in length between perpendiculars, 30 feet in molded breadth, and 17 feet 9 inches in depth, molded to promenade deck. In nearly all respects she is similar to the usual modern type of river or coasting pleasure steamer, only slight

changes having been introduced to suit turbine machinery, which consists of three separate turbines driving three screw shafts. The speed obtained by the *King Edward* was about 20 knots.

The first order received by any British shipbuilder for a turbine yacht has come from an American—Mr. A. L. Barbour, of New York. Messrs. Ramage & Ferguson, of Leith, are building this yacht to the design of Messrs. Cox & King, naval architects, London. She will be 252 feet 3 inches in length on the water line (about 300 feet over all), with 32 feet 6 inches beam and a molded depth of 21 feet. The turbine machinery, I am led to believe, will not be materially different from that of the *King Edward*, in which the high-pressure turbine is placed on the center shaft, carrying one propeller, and the two low-pressure turbines each drive one of the outer shafts, each of these shafts carrying two propellers. In the exhaust ends of each of the latter are the two astern turbines, which are in one of the low-pressure motors, and operate by reversing the direction of rotation of the low-pressure motors and outside shafts. When the vessel is going ahead, the steam from the boilers is admitted to the high-pressure turbine, and after expanding about fivefold it passes to the low-pressure turbines, is further expanded in them twenty-five fold, and then passes to the condensers, the total expansion ratio being estimated at one hundred and twenty fold. It is said that at 20 knots the revolutions of the central shaft are 700 and of the outer shafts 1,000 per minute. The outer shafts only are used when going alongside a wharf or moving in or out of harbor, and the steam is admitted by suitable valves directly into the low-pressure motors or into the reversing motors on each side of the vessel.

The yacht will have an indicated horsepower of 2,500. As to the speed expected to be obtained, the designers will say no more than that "it will not be less than 16 knots." My impression is that a much higher speed is aimed at, but as the turbine applied to vessels must still be deemed somewhat of an experiment, the designers, wisely enough, withhold any opinion or expectation they may entertain and await results. In regard to the coal consumption of turbine engines per indicated horsepower, as compared with ordinary engines, there seems to be some uncertainty. In this respect, the *King Edward* on her trips last summer was fairly economical, but this test is hardly a satisfactory one in arriving at the probable coal consumption of a turbine yacht, for the *King Edward* ran continuously at high pressure from Glasgow to Campbelltown and return, whereas a yacht on a cruise will steam at varying rates of speed.

This turbine yacht will be completed in about ten months.

RUFUS FLEMING,

EDINBURGH, *January 13, 1902.* *Consul.*

TRADE NOTES FROM EAST SCOTLAND.

RUSSIAN MAIZE DISPLACES AMERICAN.

In normal years, practically the whole supply of indian corn for this market comes from the United States. Since August last, however, the high price of the American product, due to a short crop, has shut it out of this market, and nearly all of the corn imported during the past seven months has come from Russia and the Argentine Republic. In that period, the receipts of corn at the port of Leith have been about 2,000,000 bushels, fully four-fifths of which was of Russian origin. At no time have the prices of Russian and American corn differed widely. At present, there is a difference of less than 6 cents a bushel, American grain being quoted at $5.75 per quarter (8 bushels) and Russian at $5.30.

It is thought that this revival of the Russian maize trade will prove to be temporary only, and that a good crop in America this year, with moderate freight rates on land and sea, will restore our corn to its old place in Scotland. The distilleries use about three-fourths of the corn imported here; and I am informed that the American product, at the same price, is preferred to the Russian, as, the grain being larger, there is less hull and a correspondingly greater yield of spirits.

DISTILLING MILLET.

In seeking to most economically obtain good grain spirits which will blend well with malt whisky, Scotch distillers, like those of other countries, have experimented with nearly every product of the vegetable kingdom, but thus far have not succeeded in finding anything quite equal to corn. The latest experiment was with Russian millet, and the results were unsatisfactory. Although the quality of the spirits was excellent, so great a proportion of rye or barley was necessary that the process proved too expensive. While millet has not, I am told, been finally rejected by the two Edinburgh companies that have tried it, the common opinion is that any further effort to make an economical use of it for distilling purposes will fail.

VARNISH.

American varnish, although used in England to a considerable extent, has not found favor in this part of Scotland. Its quality has been sharply criticised by the Scotch varnish manufacturers, and, in the opinion of one of these gentlemen—

The trouble lies principally in the use of rosin. Sunlight or heat from any source is sure to bring the rosin to the surface, thus enabling one to easily scratch and destroy the finish in a short time. A carriage or desk finished with American varnish is unequaled in fine, glossy appearance, but it does not last as long as the English or Scotch make. In a word, the American varnish has a false back, owing to the amount of rosin put in with the shellac.

I give this opinion for what it may be worth, but chiefly to show the kind of opposition our varnish makers must be prepared to overcome here.

LEATHER.

Several leather firms in Scotland have for many years been doing a steady and profitable trade in American leather. The demand comes mainly from boot and shoe manufacturers. Our upper leather is largely used. As a rule, importers buy in moderate quantities; a heavy order is rarely given for one shipment, the aim being to keep the market supplied without accumulating a surplus. A leading leather importer says that the growth of imports of American boots and shoes has not yet affected the market for our leather, but that the tendency is toward a lighter demand.

MOLDINGS.

American moldings for picture frames come to the Scotch dealer c. i. f. at practically the same price that he pays for the English article. They are now used more generally in Edinburgh than German moldings, and the trade is growing. As to quality, I have heard no complaint, except that the wood of the cheaper moldings is somewhat soft.

ALLIGATOR SKINS.

Not long ago, a merchant in Cuba wrote to this consulate for information as to the market for alligator skins in the raw state. An inquiry elicited the fact that London is the only place in the United Kingdom where the raw skins are sold. They are generally offered at auction, and thus the exporter, as a rule, can not know in advance what his goods will sell for. If alligator skins are properly treated, so as to keep them soft and pliable, they always find a good market. Roughly speaking, raw skins in first-rate condition are valued at 25 cents an inch, measuring across the shoulders.

HAND PUMP.

Among the American machines recently introduced into East Scotland is a hand pump for emptying cesspools, etc. It seems to have recommended itself highly, especially to railway and coal-mining people, and the local agent has been doing well with it. He said to me the other day: "I have never been so busy in my life."

C. I. F. QUOTATIONS.

The importance of quoting to prospective buyers on this side prices which include freight is of course fully understood by the great majority of our exporters, for it is obvious that the buyer can not ascertain in advance the amount of the freight; but in this matter, there is now and then an instance of costly neglect on the part of a shipper. Some time ago, a commission agent in this city entered into negotiations with American coal exporters for the delivery of a large quantity of coal at a port in Spain for a factory owned by British capitalists. The exporting company failed to furnish c. i. f. quotations, and as time was pressing and other offers were at hand, the order went to a British firm. The agent is confident that the American company could have secured the order by promptly stating the price of the coal delivered.

A SURPLUS OF CARGO VESSELS.

Shipping interests are still depressed, with freight rates much below the rates of a year ago. I have seen a list of twenty-five cargo steamships, of from 2,000 to 6,500 tons dead weight, belonging to east coast companies, which are offered for sale at what the owners say are low prices. Some of these vessels are not yet completed, others are new, but most of the number have been in the water a good many years.

RUFUS FLEMING,

EDINBURGH, *February 18, 1902.* *Consul.*

INTERNATIONAL AMATEUR ROWING RACE AT CORK.

Ambassador Choate transmits from London, February 25, 1902, copies of a circular sent to the embassy by the chief secretary to the Lord Lieutenant of Ireland, relative to a proposed rowing race at Cork in connection with the exhibition which will be held in that city in July, 1902.* The Lord Chief Justice has promised to give a cup, which is to be won "out and out"—not a challenge cup. The race will be open to amateurs of all nations, and it is desired that publicity be given the project in the United States. The circular states:

> The object of this competition is to encourage amateur rowing in general, and more particularly to foster and promote international rowing, by giving an opportunity to clubs of all nationalities to meet on a common ground.

*ADVANCE SHEETS No. 1162; CONSULAR REPORTS No. 255.

With this object in view, Lord O'Brien, in conjunction with others interested in the sport, has promised to provide a cup for competition which will be adequate to so important an event. The value of the cup will be not less than £250 ($1,216), and presentation prizes will be added.

The race for the cup will take place on the 21st, 22d, and 23d of July, 1902, on the River Lee, near Cork.

Every facility will be given to intending competitors, and especially advantageous terms are being arranged with the various railway and steamship companies respecting the carriage of boats and crews to and from Cork.

Lord O'Brien has made it a condition that the race must be of an international character, and consequently the cup will not be given unless at least one crew other than an Irish crew shall enter and compete.

CONDITIONS.

(1) The cup shall be rowed for under the rules of the Irish Amateur Rowing Union (similar to the rules which obtain at Henley), and subject to the amateur qualifications therein contained.

(2) The cup may be competed for by amateur crews consisting of members of recognized clubs or combinations from recognized clubs.

(3) The course shall be not less than 2 English miles in length.

(4) The committee shall have power to order the race to be rowed in heats if they think fit, and not more than two boats shall be permitted to row in the same heat.

(5) The race shall be rowed in eight-oared boats with coxswains.

(6) The cup shall not be a challenge cup, but shall be won out-and-out on the the occasion of the first race.

(7) The entrance fee shall be £5 5s. ($25.54), and must accompany all entries.

(8) Entries shall close with the secretaries on the 6th day of July, 1902, for crews of the United Kingdom and those comprised in the Fédération Belge, Fédération Internationale, Union Française, Fédération Française, Deutscher Ruder Verband, and Verbonden Nederlandsche Rocivereenigingen; other entries must be received not later than the 1st day of June, 1902.

(9) The committee reserve the right to refuse any entry without assigning a reason.

(10) The race shall be under the control of officials appointed by Lord O'Brien.

(11) The decision of the committee on all matters shall be final.

AMATEUR QUALIFICATION.*

No person shall be considered an amateur oarsman, sculler, or coxswain—

(1) Who has ever taken part in any race for a stake, money, or entrance fee.

(2) Who has ever knowingly competed with or against a professional for any prize.

(3) Who has ever taught, pursued, or assisted in the practice of athletic exercises of any kind for profit.

(4) Who has ever been employed in or about boats, or in manual labor for money or wages.

(5) Who is or has been by trade or employment for wages a mechanic, artisan, or laborer, or engaged in any menial duty.

(6) Who is disqualified as an amateur in any other branch of sport.

* Extracts from Irish Amateur Rowing Union rules.

FOREIGN USES OF OIL FUEL.

Early in February, I received a letter from Galveston propounding certain queries as to the likelihood of oil fuel being introduced here. I replied as fully as I could at the time; but I have since made further investigations and now furnish the results.

I venture to prognosticate that this new combustible is destined ere long to revolutionize the coal markets of the world. The abnormal cost of steam coal in Great Britain—particularly in Wales—and the exorbitant price of the best house coal (£1 6s., or $6.50, per ton) are calculated to hasten this revolution.

An impetus was given to this industry five years ago, when petroleum discovered in Borneo was found to be well adapted for fuel purposes. This field is owned by the Shell Transport and Trading Company, Limited. Last year (1901), the exports exceeded 100,000 tons.

The Dutch Steamship Company uses this fuel in its boats; the Hamburg-American Line has built four new steamers adapted for oil fuel, and run them in the Eastern trade with marked success; the North German Lloyd has two local steamers using oil; the East Asiatic Company, of Copenhagen, employs this fuel in its local boats, and is building two ocean-going steamers with the intention of using it; and the China Mutual is preparing three boats for the employment of oil.

The prejudice against this sort of fuel is passing away. Several firms are contemplating a change in their method of steam production, which they predict will be as safe as the old method and more economical. The advantages are said to be:

First. The saving of labor is large; there will be no ashes to hoist overboard after each watch; no need of stoking. All that will be necessary will be to watch the water in the boilers; the feeding of the fuel to the furnaces will be automatic.

Second. Fewer deck hands will be needed, as the dirt caused by coal shoveling will be done away with.

Third. Under proper combustion, no smoke will be generated; every atom of oil is of calorific value; there is no residue.

Fourth. The fuel may be stored in the double bottom of a ship, the forepeak, afterpeak, and tanks under the engine room, thus occupying space not utilizable in any other way. No rust is possible where it is stored. The space now filled by coal bunkers is thus available for cargo; oil stores in a space of 35 feet per ton, as against 44 feet per ton of coal. The last results obtained show that Messrs. Thorneycroft have evaporated 18.95 pounds of water per pound of

oil in their torpedo-boat type of boiler, but in ordinary locomotive types 15 pounds of water per pound of oil is obtained.

Fifth. The oil fuel has a higher concentration of heat for manufacturing than can be obtained with coal.

Until recently, oil fuel was held at a figure which did not enable it to compete with coal. A few months ago, however, oil in tremendous quantities was discovered in Texas, and the Shell Company found that it was capable of giving the same results as are derived from Borneo oil. An enormous expansion of its use may be expected.

The Great Eastern Railway, in this country, has already a large number of locomotives using this fuel. They say that by its use steam is more easily produced and is maintained up the steepest gradients, and great economy is effected by reducing the supply of oil when descending or remaining stationary; the life of the boilers is prolonged, inasmuch as the tubes do not foul; the nuisance of smoke and the danger of sparks to surrounding property are entirely obviated, and the rolling stock generally is kept in a state of cleanliness which is impossible on a line where coal is used as a motive power.

DANIEL T. PHILLIPS,
Consul.

CARDIFF, *February 10, 1902.*

THE MANUFACTURE AND TECHNICAL USES OF ALCOHOL IN GERMANY.

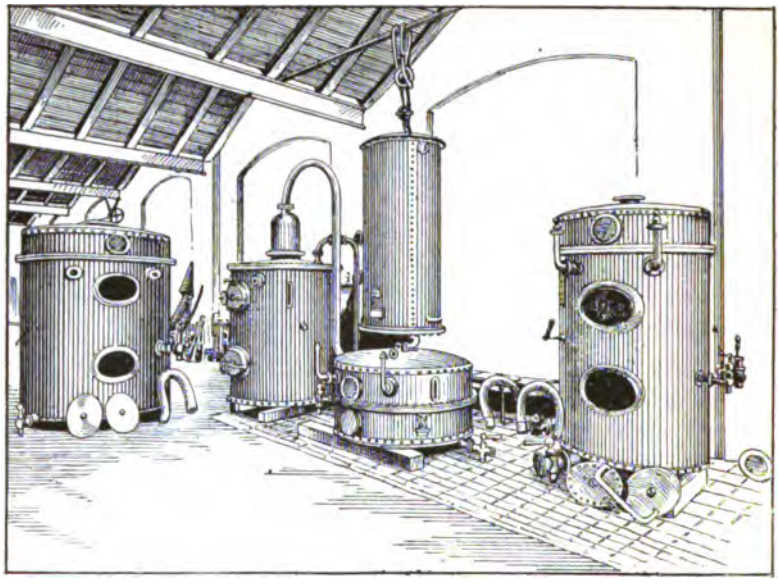
One of the most interesting and suggestive of the special expositions held or to be held in Berlin this year is that of the alcohol industry, which opened on Saturday, February 8, and will close on the 16th of this month. It is located in a large group of buildings built for exhibition purposes by the National Brewer's Association in a northern suburb of Berlin, and, although remote from the business portion of the city, it has attracted a large attendance, mainly of persons more or less directly concerned with the production or with one or more of the many and rapidly increasing uses of alcohol for domestic and industrial purposes.

For several controlling reasons, this whole subject has reached in Germany a stage of development which gives to the present exposition a suggestive meaning for agricultural and industrial economists in other countries. Germany has no natural-gas wells or native-petroleum supply. When, some years ago, the question of adopting motor carriages for military purposes was under discussion, it was remarked by the officials of the War Department that kerosene

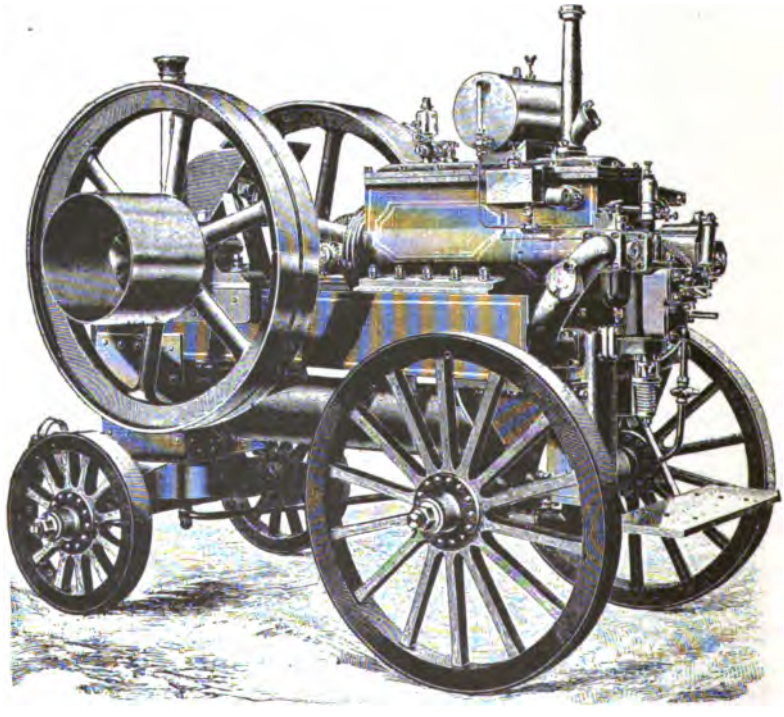
and gasoline engines could only be operated with one or the other of the products of petroleum, which is not produced in Germany, and the supply of which might, in case of war, be wholly cut off. But the broad, sandy plains of northern and central Germany—in fact every agricultural district of the Empire—produce in ordinary years cheap and abundant crops of potatoes, from which is easily manufactured, by processes so simple as to be within the capacity of every farmer, a vast quantity of raw alcohol. The crude molasses left as a refuse product of the raw beet-sugar manufacture contains from 40 to 50 per cent of sugar which can not be crystallized, and this can also be utilized as a material for the production of alcohol. Under these conditions "spiritus," as it is known in this country, became one of the standard and important products of agriculture, and every effort has been made by the imperial and state governments to promote and extend its use for domestic and industrial purposes. Inventors and scientists have been busy with improvements in the processes and machinery of distilleries. New and highly perfected motors, lamps, and cooking and heating apparatus have been devised and put in use, until crude alcohol is becoming one of the most widely utilized products of German industry. Official statistics show that during the year 1901 there was consumed in this country for technical purposes no less than 116,000,000 liters (30,624,000 gallons) of denaturized alcohol on which no tax was paid. As a concrete result of these conditions, and the preeminence of the Germans in every form of applied chemistry, the present exposition is typical, and fairly represents the highest results yet attained in the production and utilization of alcohol. As such, it supplements and largely amplifies in scope the special exposition of spirit engines and motor carriages which was held at Paris from August 16 until November of last year.

GENERAL PLAN OF THE EXPOSITION.

The exhibits are grouped according to their nature under five general categories, viz: (1) Apparatus for the manufacture of alcohol; (2) motors and motor carriages; (3) illumination by spirit light; (4) heating, cooking, etc., by alcohol flame; and (5) the uses of alcohol in chemistry and the useful arts. They are catalogued under 99 serial numbers, each of which covers the collective display of a manufacturing firm or company. Some of these comprise, under a single catalogue number, 20 or more different articles, as, for instance, a complete outfit for a scientific modern distillery, with the machinery for grinding corn, macerating, fermenting, and distilling potatoes, or for the treatment of maize and molasses waste as raw materials. This department, although interesting and important to those concerned in the industry, is for obvious reasons the least attractive and popular feature of the exposition.

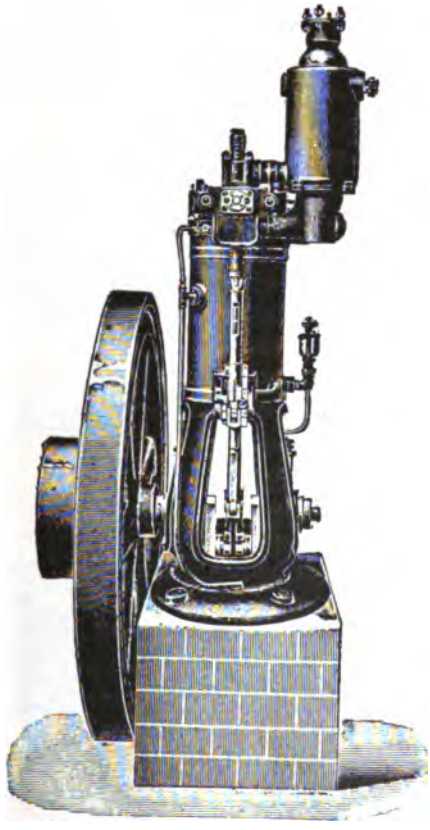


Equipment of a German farm distillery.



Portable spirit engine for agricultural and general purposes.

Of far greater general interest is the department of spirit motors, which are shown in all forms—upright and horizontal, stationary, portable, and locomotive—and applied to various types of motor carriages. In a lot adjoining the exposition building, a circular railway of narrow gauge has been constructed, upon which trains of ten or a dozen cars are drawn by alcohol locomotives. These are adapted for service on large farms and sugar plantations, and for mining, tunneling, and engineering operations where quantities of earth, stone, or other materials are to be transported short distances. The locomotives are of the vertical-cylinder type, and carry a fly wheel to balance and regulate the motion of the engine.



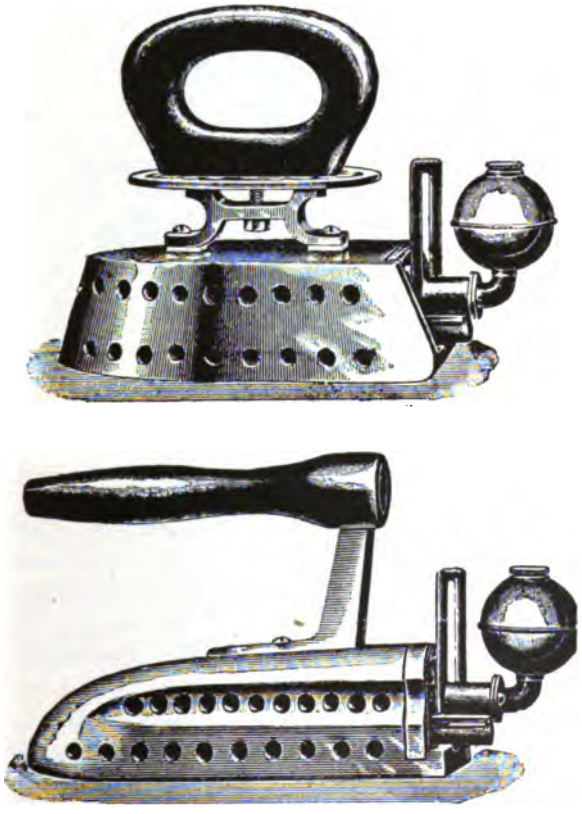
Stationary 10-horsepower spirit motor.

Adjoining the railway is a large, open shed in which is exhibited by the Daimler Company at Cannstadt a 10-horsepower engineer's wagon, carrying tools and apparatus for a regiment of sappers and miners in field service. It is substantially built, has a speed up to 10 miles an hour, and is said to have proved serviceable and efficient in actual use. Kühlstein & Co., the Berlin carriage makers, exhibit

an alcohol-motor wagon and a coupé and runabout propelled by spirit motors, but the display in the department of vehicles falls far short in extent and variety of that in Paris last autumn, which was one of motor carriages only. Owing to stringent police surveillance and many troublesome formalities, automobiles for pleasure and sporting purposes have found thus far a rather lagging and uncertain acceptance in Germany, and in this respect alcohol-motor carriages have shared the general experience. But it is in the class of stationary and portable engines for agricultural and manufacturing purposes that the present exposition is profuse, keenly contested, and instructive. In this class, all the leading German gas-engine builders—the Helios, Otto, Körting, the great machine companies of Dresden, Leipzig, and Marienfelde—exhibit their latest and most highly improved creations. These include caloric engines in all forms and sizes, from 1 to 20 horsepower, built specially for the consumption of alcohol, as distinguished from oil, benzine, gasoline, or coal-gas engines of established types. Most of them are shown in motion, geared to rotary pumps, circular and band saws, mills for grinding corn, or turning the machinery of distilleries. The Schuckert Company, of Nuremberg, exhibits a 12-horsepower military field-lighting wagon, in which a dynamo, driven by a double-cylinder spirit engine, generates electricity for lighting a camp, headquarters, or group of hospitals. It is self-propelling, has a speed of 5 to 10 miles an hour, and should be efficient in actual service. Theoretically, alcohol has only three-fifths of the thermal value of petroleum, but it has been found that for motor purposes 28 per cent of the theoretic energy of alcohol can be utilized against a maximum of 15 per cent in case of petroleum and its products. This advantage in favor of alcohol is still further increased by an admixture of 16 per cent of benzol. Another important advantage of alcohol, which applies specially to its use in motor carriages and in engines for operating creameries and small manufacturing plants in premises adjacent to dwellings, is its absolute cleanliness and freedom from the mephitic odors which render hydrocarbon engines so offensive to many people. At its present price of 15 marks per hectoliter (about 13½ cents per gallon), it competes economically with steam and all other forms of motive energy in engines of less than 20 horsepower for thrashing, pumping, and all other kinds of farm work, so that a large percentage of the spirit produced in agricultural regions remote from coal fields is consumed in the district where it is grown. The motor for farm use is tightly inclosed and absolutely free from danger of fire.

Next in order of importance are the uses of alcohol as fuel for cooking, heating, and a vast range of scientific and domestic purposes. Accordingly, the present exhibition includes a great variety of

alcohol stoves for warming and cooking—a large kitchen in operation and accessible to visitors supplies the restaurant which is an indispensable adjunct of a German exposition. There are spirit lamps of all the most improved types for household purposes, as well as for use in chemistry and other scientific processes. One of the neatest of the many new devices shown is a spirit flatiron, handsomely nickel plated and polished, and provided with a small reservoir, which, being filled with alcohol and lighted, heats the iron for



Flatirons heated by interior spirit flame.

two hours' work at a cost of less than 2 cents. The cleanliness and economy of these fixtures, especially in summer, to housekeepers beyond the reach of a city gas supply is obvious, and the sale annex of the exposition for domestic supplies has been actively patronized throughout the week.

Not less attractive is the department devoted to lamps and lighting apparatus. This is all the product of the past five or six years, and dates from the comparatively recent discovery that alcohol vapor

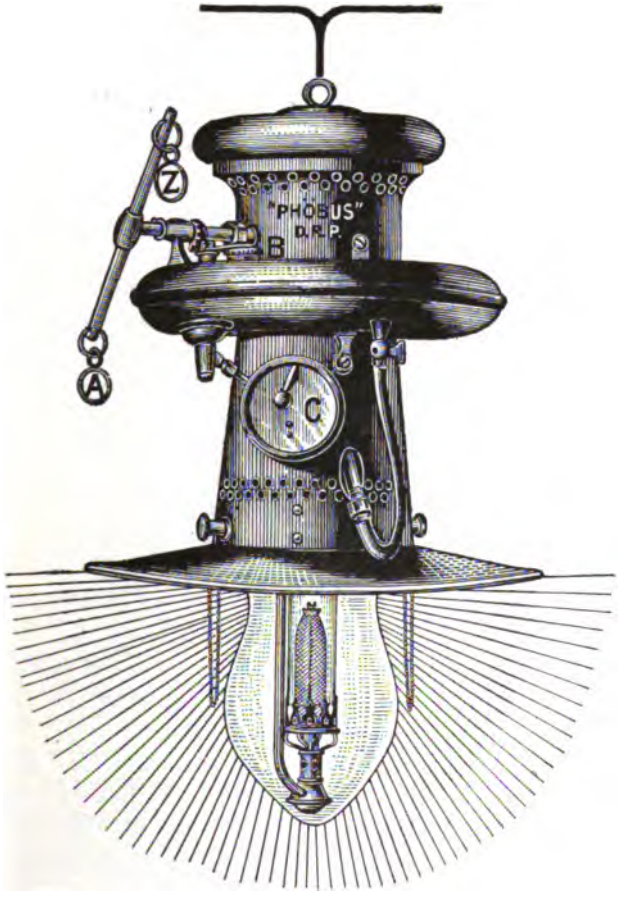
burned in a lamp hooded with a mantle of the Welsbach type produced an incandescent light of intense power. In this special field, alcohol leaves petroleum behind and approaches the illuminative power of electricity. The display in this department includes a vast range of portable and fixed lamps and illuminators for all locations

Ordinary incandescent spirit table lamp.

and purposes. All are similar in theoretic construction—there is the reservoir filled with spirits from which a wick of multiple strands leads to the burner, hooded with the incandescent mantle and shielded by an Argand chimney. As a measure of efficiency, it is claimed for the Phœbus ceiling lamp that it is impervious to wind and weather and gives a light of 85 candlepower at a cost of 3 pfennigs (three-fourths of 1 cent) per hour. Another device, called the "Bogenlicht" (arc lamp), yields a light of 550 candlepower and claims an advantage of 66 per cent in economy as compared with an electric light of the same radiance under Berlin rates. The ordinary shaded hand lamp for everyday use is typified by the "Piccolo," which is made of bronze, with white or colored porcelain shade, costs from $1.50 to $2.50, according to size and design, and gives a light of 30 candles at a cost for spirit of one-third of 1 cent per hour. This contemplates alcohol for lighting purposes at the present German rate of 25 pfennigs per liter—equivalent to 21.7 cents per gallon. Here, as well as in the departments of power and heating, the cleanliness and unoffensiveness of alcohol as a burning material was most noticeable. Even in the galleries of the exposition building, in which

hundreds of engines, lamps, stoves, and other devices were in constant operation, there was no trace of unpleasant odor nor any heat that was oppressive or uncomfortable on a winter day.

The department of chemical preparations includes, among many other specialties, solidified alcohol—a brown, translucent mass—which is generally used in small cubes as a convenient form for



Ceiling lamp—85 candlepower.

transportation. It can be carried in the pocket, lights readily, and may be employed as a detergent for cleaning textile fabrics and most other technical uses of alcohol. There is also a large display by several leading makers of vinegar from alcohol and acetic acid. This industry is mainly the growth of the period since 1887, and its extent may be estimated from the fact that there is consumed in this country annually for the manufacture of vinegar 16,000,000 liters (4,224,000 gallons) of alcohol.

The display of chemical products leads into the aldehydes, amyl-alcohol, the ethers, ethyls, and other technicalities which are beyond the scope of a popular report. It will suffice for the present purpose to say that in aniline and other important branches of chemical manufacture alcohol is a profuse and indispensable ingredient, and one of the potent advantages which has given Germany her supremacy in the manufacture of coal-tar colors, as well as lacs, varnishes, perfumes, and a vast range of pharmaceutical products, has been the wisdom and foresight of the Government in promoting a plentiful supply of cheap, untaxed alcohol for use in the industrial arts.

SOME TEACHINGS OF THE EXPOSITION.

The law governing the technical uses of alcohol was enacted in 1887, and, by reason of both its underlying causes and practical results, is worthy of study as an example of intelligent, far-seeing fiscal legislation. It was at that period—about fifteen years ago—that German agriculture began to feel severely the effects of competition from the cheaply grown cereals and meats of the United States, Argentina, and Australia. The landowning class, including the influential nobility—which had been for centuries loyal and steadfast supporters of the Crown—urgently demanded legislation which would save the waning profits of husbandry. Alcohol was a direct secondary product of the sugar manufacture, and could, besides, be made from potatoes, a spring crop which could be planted as a recourse on plowed-up fields of winter-killed wheat and rye. Moreover, alcohol was an indispensable raw material for the chemical industry, and might be made to replace, for certain purposes, the by-products of petroleum. It was accordingly decided to make alcohol for technical uses as cheap as possible, and to promote by all practicable means its production and consumption in this country.

The law was therefore so framed as to maintain the high revenue tax on alcohol intended for drinking, but to exempt from taxation such as should be denaturized and used for industrial purposes. Denaturization is accomplished by mixing with the spirit a small proportion of some foreign substance, which, while not injuring its efficiency for technical uses, renders it unfit for consumption as a beverage. The denaturizing substances employed depend upon the use to which the alcohol is to be subsequently applied. They include pyridin, picolin, benzol, toluol, and xylol, wood vinegar, and several other similar products. As a result of this system, Germany produced and used last year 30,642,720 gallons of denaturized spirits, as compared with 10,302,630 gallons used in 1886, the last year before the enactment of the present law. Of this vast amount, about two-thirds was of the ordinary grade for power and heating purposes,

such as costs at present 13½ cents per gallon. The remaining third of the entire amount was denaturized for lighting and chemical purposes, or used pure under certain restrictions for the manufacture of perfumes, extracts, and medicinal preparations. The second or higher grade of denaturized spirit, such as is burned in lamps or used for cooking and heating, sells ordinarily for about 25 cents per gallon, but, on account of the enormous potato crop of last year, the heavy production of alcohol, and the stagnation in many industries which are consumers of spirits, the price has been reduced by the national association, or syndicate, of alcohol producers to the equivalent of 21.7 cents per gallon. The wisdom of the system established by the law of 1887 has long ceased to be a question of debate. For every reichsmark of revenue sacrificed by exempting denaturized spirits from taxation, the Empire and its people have profited tenfold by the stimulus which has been thereby given to agriculture and the industrial arts.

FRANK H. MASON,
Consul-General.

BERLIN, *February 12, 1902.*

AN INTERNATIONAL MOTOR-BOAT EXHIBITION AT BERLIN.

On the 1st of June next there will be opened at Wannsee, a pleasant watering-place station on the Havel a few miles west of Berlin, an international exhibition of motor boats and all that pertains to their construction, use, and maintenance. The enterprise is projected under the auspices of the Middle European Motor-Carriage Association, and the committee of initiative, which has its office at No. 1 Universitäts strasse, Berlin, has for its president Count von Talleyrand-Périgord, and is made up of well-known men of the highest position and responsibility. The exposition will have the powerful support of the Emperor of Germany, whose technical knowledge and enthusiastic interest in all that relates to boat construction and navigation are well known.

The plan of the exhibition contemplates a practical competitive international display, which is intended to bring together in friendly competition the best that has been achieved in all countries in respect to the construction, care, and use of boats, launches, yachts, and other craft of moderate tonnage and propelled by gas, gasoline, electrical, or steam motors. The exposition premises are in a handsome park on the shore of the Havel, at a point where it is about 2 miles in width, with a stretch of open but sheltered water many miles in length and sufficiently deep for all practical purposes. The main exposition building will be 350 feet in length by more than 50

feet in width, and will be supplemented by tents and pavilions to accommodate exhibits which may be too large or too numerous to find place in the main building.

In front of the park, moorings will be provided under control of the management, where boats can be kept day and night, guarded and taken care of by employees of the managing committee. Repair shops, both afloat and on shore, and an electrical supply station will be provided, fully equipped with necessary tools, machinery, expert workmen, and supplies of all kinds.

A special and highly interesting department will be that of life-boats, life-preservers, and inventions of every kind which have for their purpose the greater safety of vessels or the security and rescue of human life at sea.

An elaborate schedule of competitions in speed, endurance, economy of fuel, etc., for the separate classes of steam, hydrocarbon, and electric motor boats is in preparation and will be carried out under the supervision of expert judges during the exposition, which will continue from June 1 until late in the summer. The speed and endurance trials will include long-distance races to Hamburg and other points on the vast system of canals, lakes, and navigable rivers of which Berlin is the geographical center. The broad, placid Havel, fringed with stately parks and dotted with wooded islands, is by common verdict the most beautiful sheet of water in central Germany and is an ideal place for such an exposition as the one now proposed. Large boats which would be difficult to transport by rail can be brought on barges or navigated on the Elbe from Hamburg to the wharf of the exposition grounds.

Facilities will be provided for landing and relaunching boats of all classes, so that they may be exhibited on land, launched for tests or competitive trials, and afterwards taken out of the water at the option of the exhibitor. A liberal award of valuable medals, as well as diplomas, will be made to the successful exhibits in the several classes, as determined by committees of international experts of recognized authority.

It is understood here that motor boats, especially those of moderate size and cost for touring and other purposes of recreation and business, are more generally used and have reached a higher development in the United States than in any European country. It is therefore especially hoped and desired that the principal American builders will not fail to improve the present opportunity to make their work known to the large concourse of interested persons who will be attracted by the coming exposition, the technical success of which will depend largely on its ability to obtain representative exhibits from France, England, and particularly the United States.

Every facility will be given for entering and withdrawing, duty free, articles for exhibition which remain unsold at the close of the display. The winners in the proposed contests in speed, endurance, and economy will be placed in a position of great advantage for the trade of Europe and the colonies in tropical latitudes where motor boats have proven so practicable and useful.

The terms and conditions which apply to all exhibitors at the forthcoming exposition, whether alien or native, are substantially as follows:

Each exhibitor shall pay an entrance fee of 100 marks ($23.80). The tariff of rents for exhibition space will be governed by the following schedule:

Description.	Fee.	
A.—For floor space in the exposition buildings, tents, and pavilions:	*Marks.*	
(1) From 1 to 5 square meters (1.196 to 5.98 square yards)..per square meter*...	15.00	$3.57
(2) From 6 to 10 square meters (7.176 to 11.96 square yards).....do.....	12.00	2.56
(3) From 10 to 100 square meters (11.96 to 119.6 square yards).....do.....	10.00	2.38
(4) Space exceeding 100 square meters (119.6 square yards), by special arrangement.		
B.—For space on walls, 3½ feet above floor or ground.....per running meter†...	20.00	4.76
C.—For space out of doors or under tents, or special constructions to be provided by the exhibitor with concurrence of the committee:		
(1) From 1 to 5 square meters (1.196 to 5.98 square yards)...per square meter...	10.00	2.38
(2) From 6 to 10 square meters (7.176 to 11.96 square yards).....do.....	7.50	1.38
(3) From 10 to 100 square meters (11.96 to 119.6 square yards).....do.....	5.00	1.19
D.—For space on the water at the moorings of the committee:		
(1) For a boat not exceeding 10 meters (10.9 yards).....	100.00	28.30
(2) For a boat 10 to 15 meters long (10.9 to 16.35 yards).....	150.00	35.70

*1 square meter=10.76 square feet. †1 running meter=39.37 inches.

In order that the dimensions of the buildings, tents, and pavilions may be adapted to the space requirements of exhibitors, it is desirable that all who wish to avail themselves of the opportunities offered by this exposition shall announce their intentions and make requisition for space at the earliest practicable date. Correspondence should be addressed to Oskar Counström, general secretary, No. 1 Universität strasse, Berlin. Berlin has nearly every year some special international exposition which foreign manufacturers, especially those of a country as anxious to extend their export trade as are those of the United States, can not well afford to neglect. The successes of the American bicycle, the Goodyear and other makes of shoe-manufacturing machinery, and a dozen other minor specialties which might be named, date from the working displays which were made of them at the Berlin exposition of 1896. The event of last year was the exposition of appliances and methods for preventing and extinguishing fires, which most American makers, busy with the Pan-American Exhibition or weary with the work and cost of the

previous year at Paris, permitted to go by default. The special feature of this year is to be the motor-boat exposition, an ideal opportunity for every manufacturer in that class who is anxious to reach the European markets by the most direct and effective method.

FRANK H. MASON,
Consul-General.

BERLIN, *February 26, 1902.*

GERMAN WINE AND GRAPE TRADE.

I send the following statistics of Germany's imports and exports of wine and grapes for 1901, compared with 1900:

Quantities imported and exported.

Country.	Quantity	
	Imports.	Exports.
Wine and must in casks.	*Cwts.**	*Cwts.**
Belgium	.....	44,596
Denmark	.....	4,824
Finland	.....	4,193
France	722,262	13,081
Great Britain	.....	48,659
Greece	29,742	.....
Italy	66,673	.....
Austria-Hungary	149,620	7,982
Netherlands	.....	24,055
Portugal	59,063	.....
Russia	.....	13,693
Sweden	.....	5,559
Switzerland	6,772	30,382
Spain	218,948	.....
Turkey in Europe	5,256	.....
Turkey in Asia	84,913	.....
Algeria	18,874	.....
Chile	4,013	.....
United States	9,458	78,122
Other countries	6,098	8,467
Total for 1901	1,381,692	283,613
Total for 1900	1,371,966	310,684
Increase	9,726	.....
Decrease	.....	27,071
Red wine for blending.		
France	25,051	.....
Greece	11,990	.....
Italy	53,431	.....
Austria-Hungary	8,980	.....
Spain	164,465	.....
Other countries	9,703	.....
Total for 1901	273,620	.....
Total for 1900	257,866	.....
Increase	15,754	.....

* 110.023 pounds avoirdupois.

Country.	Quantity.	
	Imports.	Exports.
Wine for distilling brandy.	*Cwts.*	*Cwts.*
France	47,016	.....
Italy	1,060	.....
Other countries	2,048	.....
Total for 1901	50,124	.....
Total for 1900	26,765	.....
Increase	23,359	.....
Sparkling wine (champagne).		
Belgium	59	3,300
France	34,412	.....
Great Britain	.....	22,163
Sweden	.....	1,951
United States	.....	3,062
Other countries	256	12,622
Total for 1901	34,727	43,098
Total for 1900	92,582	44,990
Decrease	57,855	1,892
Still wine in bottles.		
Free port Hamburg	.....	5,733
Belgium	.....	5,300
France	10,635	3,502
Great Britain	.....	50,921
Netherlands	.....	18,284
Norway	.....	1,377
Austria-Hungary	1,372	6,844
Russia	.....	3,027
Finland	.....	1,597
Sweden	.....	4,217
Switzerland	.....	1,491
British West Africa	.....	1,426
German East Africa	.....	1,381
British East India	.....	1,513
China	.....	7,691
United States	.....	42,611
Other countries	4,081	20,127
Total for 1901	16,088	177,042
Total for 1900	17,340	177,685
Decrease	1,252	643
Spirits in casks.		
France	28,070	.....
Great Britain	7,040	.....
Netherlands	4,090	.....
Netherlands colonies	3,837	.....
British West India	8,030	.....
Free port Bremerhaven-Geestemünde	.....	4,006
French West Africa	.....	6,642
Other countries	3,325	18,458
Total for 1901	54,392	29,106
Total for 1900	183,453	39,712
Decrease	129,061	10,606
Spirits in bottles.		
France	579	.....
Great Britain	249	.....
British West Africa	.....	121,792
French West Africa	.....	12,346

Country.	Quantity.	
	Imports.	Exports.
Spirits in bottles—Continued.	*Cwts.*	*Cwts.*
German West Africa	.....	8,408
Other countries	562	40,978
Total for 1901	1,390	183,524
Total for 1900	4,926	196,132
Decrease	3,536	12,608
Liquors in casks and bottles.		
France	1,311	.....
Austria	238	.....
Brazil	.....	1,010
United States	.....	3,440
Other countries	552	6,081
Total for 1901	2,101	10,531
Total for 1900	7,029	9,823
Decrease	4,928	.....
Increase	.....	708
Dessert grapes.		
France	16,016	.....
Italy	227,475	.....
Austria-Hungary	20,445	172
Portugal	3,807	.....
Spain	35,037	.....
Switzerland	.....	370
Other countries	11,085	481
Total for 1901	313,145	1,023
Total for 1900	230,003	1,050
Increase	83,142	.....
Decrease	.....	28
Common grapes.		
France	146,278	26
Italy	135,025	.....
Austria-Hungary	38,014	.....
Spain	125,750	.....
Switzerland	.....	77
Other countries	15,793	.....
Total for 1901	460,860	103
Total for 1900	367,235	151
Increase	93,625	.....
Decrease	.....	48

Value of imports and exports in United States gold.

Description.	1901.		1900.	
	Imports.	Exports.	Imports.	Exports.
Wine and must in casks	$8,370,460	$2,138,430	$8,489,698	$2,315,740
Wines:				
Red (for blending)	733,278	.....	678,538	.....
For distilling brandy	125,426	.....	60,452	.....
Sparkling (champagne)	845,376	498,848	2,253,622	250,018
Still (in bottles)	288,932	2,566,592	311,304	2,596,996

Value of imports and exports in United States gold—Continued.

Description.	1901.		1900.	
	Imports.	Exports.	Imports.	Exports.
Liqueurs in casks and bottles	$48,552	$81,158	$162,792	$75,684
Spirits:				
In casks	900,354	95,438	3,056,396	133,280
In bottles	66,878	686,868	229,670	731,136
Grapes:				
Dessert	1,335,180	5,236	1,148,112	6,902
Common	947,240	238	779,450	476
Total	13,661,676	6,072,808	17,170,034	6,369,832
Decrease	3,508,358	297,024	.....	.....

WALTER SCHUMANN,

MAINZ, *February 18, 1902.* *Consul.*

WORLD'S WINE CROP.

The Viticultural Moniteur, which has correspondents throughout the world, has just published its statistics on the production of wine for the year 1901.

EUROPE.

It gives the French crop at 57,963,000 hectoliters (1,531,208,200 gallons), showing a diminution of 9,389,000 hectoliters (248,029,213 gallons), compared with 1900. The production of 1901 is 18,000,000 hectoliters (475,506,000 gallons) above the average for the ten preceding years.

There has been an increase in the area devoted to viticulture of 4,894 hectares (12,093 acres) in the past year, which gives a total area of 1,735,345 hectares (4,288,037 acres).

After France, the great producers of wine are Italy, with 38,400,000 hectoliters (1,014,413,000 gallons) in 1901; Spain, with 19,700,000 hectoliters (520,414,000 gallons); and Portugal, with 5,900,000 hectoliters (155,860,000 gallons). In Austria, the crop was estimated at 4,400,000 hectoliters (116,235,000 gallons); in Roumania, at 3,300,000 hectoliters (87,176,000 gallons); in Russia, at 2,900,000 hectoliters (76,609,000 gallons); in Bulgaria, at 2,800,000 hectoliters (73,970,000 gallons); in Germany, at 2,300,000 hectoliters (60,759,000 gallons); in Turkey (including Cyprus), at 1,900,000 hectoliters (50,192,000 gallons); in Switzerland, at 1,200,000 hectoliters (32,058,000 gallons); and in Servia, at 900,000 hectoliters (23,753,000 gallons).

AMERICA.

Chile harvested, in 1901, 3,300,000 hectoliters (87,176,000 gallons); the Argentine Republic, 2,100,000 hectoliters (55,476,000 gallons); the United States, 1,500,000 hectoliters (39,600,000 gallons); Peru, 1,400,000 hectoliters (36,984,000 gallons); Brazil, 480,000 hectoliters (12,680,000 gallons); Uruguay, 90,000 hectoliters (2,376,000 gallons); Mexico, 35,000 hectoliters (924,000 gallons); Bolivia, 25,000 hectoliters (660,000 gallons).

AFRICA AND AUSTRALIA.

Aside from Algeria and Tunis, which produce, respectively, 5,547,000 hectoliters (146,535,099 gallons) and 170,000 hectoliters (4,491,000 gallons), the vine is not seriously cultivated in Africa, except in the islands owned by Portugal (Madeira giving in a normal year 300,000 hectoliters, or 7,925,000 gallons), and at the Cape, which produces 120,000 hectoliters (3,170,000 gallons).

Australia produced 315,000 hectoliters (8,321,000 gallons).

ASIA.

Asia, which is the cradle of the vine, occupies a low place in the statistics, perhaps because Asiatic religions do not sanction the drinking of wine. Outside of Asia Minor, the vine is not cultivated, save in Persia, where 29,000 hectoliters (765,600 gallons) were produced in 1901. In China, an Austrian company has embarked in the planting of vineyards. They occupy a vast territory and several places are in full bearing. According to a French consul, the grapes are large and numerous, but they rot when the rains come and ripen too fast when the sun shines. The wine, too, is inferior, and must be mixed with that of Europe before being fit to drink.

There is a general crisis for wine growers, because of an overproduction in the entire world.

JOHN C. COVERT,
Consul.

LYONS, *January 22, 1902.*

GERMAN IMPORT OF WHEAT AND FLOUR.

The importation of wheat flour into Germany was as follows for the years named:

Year.	Total import.	From United States.		From Austria-Hungary.	
	Tons.	*Tons.*	*Per cent.*	*Tons.*	*Per cent.*
1901	38,470	11,952.4	31.07	20,214.4	52.02
1900	33,673	9,551.3	28.36	18,274.3	54.27
1899	42,031.5	10,483.4	24.94	19,091.7	45.42

The importation of wheat into Germany has been:

Year.	Total import.	From United States.	From Russia.	From Argentina.	From Roumania.	From Australia.
	Tons.	*Tons.*	*Tons.*	*Tons.*	*Tons.*	*Tons.*
1901	2,134,200.3	1,237,061.7	495,959.6	223,770.3	87,055.4	42,749.3
1900	1,293,863.8	455,933.8	278,195.7	479,928.5	43,455.2	3,160.4
1899	1,370,850.5	710,317.9	332,311.1	252,202.7	40,622.9	14,035.8

RICHARD GUENTHER,
Consul-General.

FRANKFORT, *February 4, 1902.*

TEMPORARY ADMISSION OF WHEAT INTO FRANCE.

The important questions involved in the proposed modification of the régime governing the temporary admission of wheat into France have been settled by the promulgation by the President, on February 4, of the new law, which had been approved by the Senate and the Chamber of Deputies.

Under the terms of the old law, an exchange of money was not essential to secure a certificate of importation. Upon the arrival of foreign wheat in the bonded warehouses, a certificate of importation was issued, and the wheat itself was cleared for consumption without payment of duty, upon the delivery into the bonded warehouses of an equivalent quantity of the manufactured product of other wheat. The whole transaction became a matter of bookkeeping, and the certificates in the hands of importers had a fluctuating market value, as they could be transferred to exporting millers. Thus, the importer who was expected to pay 7 francs per 100 kilograms ($1.35 per 220 pounds) upon foreign wheat, after selling the certificates for from 1 to 3 francs (19.3 to 57.9 cents), was practically enabled to defeat the tariff law to just the amount for which he disposed of his certificate upon the market. Under the new law, only the actual exportation of the merchandise will be considered justification for the reimbursement of the certificates, and the amount of the duty must in all cases be paid in cash upon the arrival of the wheat.

The wheat and flour trade is deeply concerned about the new law, as methods of evading its terms have been suggested and will doubtless be passed upon by the courts in due time. If the trafficking in the certificates of importation is effectually prevented by the law, the effect will be to stiffen the market prices of wheat in this

country. Translation of the important articles of the new act follows:

ARTICLE 1. The régime of the temporary admission of wheat organized by the laws of July 5, 1836, and January 11, 1892, is modified as follows:

The amount of the import duties upon foreign wheats presented for temporary admission must be covered into the treasury at the moment of admission. Upon the direct delivery of such wheats into the mills of the importing miller, an untransferable certificate of importation will be delivered, the amount of which will be reimbursed by the customs officers in proportion to the quantities of flour, semolina, bran, and alimentary products derived from the wheat imported and enumerated in article 2, which shall have been exported after the creation of the certificate of importation, and according to the rate of compensation actually in force or which shall be established hereafter by decree.

ART. 2. The amount of duty paid will be definitely acquired by the treasury in the event of failure of reexportation of flours, semolina, and brans by the importer within two months following the delivery of the certificate of importation.

This delay may be extended to four months, when the importing miller shall have, before the expiration of two months, established to the satisfaction of the customs officers, who shall proceed to the verification of the products, the transportation of semolina or of flours manufactured in his mills to a manufacturer of alimentary pastes, sea biscuits, or sweetened biscuits. Said manufacturer will thereupon indorse upon the certificate of importation the delivery of the product of his manufactory, the exportation of which in manufactured form will permit the reimbursement of the duties paid. The reimbursement of customs duties shall take place only in the case of products forwarded directly from mills or manufactories to the port of departure. These reimbursements shall take place within three days from the delivery of the certificate of importation to the bureaus of emission.

ART. 3. The reexportation of flours, semolina, brans, and alimentary pastes derived from pastes may take place from all the bonded warehouses and through all the bureaus open either to the transit or entry of merchandise paying more than 20 francs per 100 kilograms ($3.86 per 220 pounds).

ART. 4. The delivery in bonded warehouse of flours, semolina, bran, and alimentary products derived from wheat which shall have given occasion to a certificate of importation will not be considered as an exportation.

ART. 5. The manufacturer, accepting terms heretofore laid down, will be required to enter the imported wheats directly into his mill or factory. He will be obliged similarly to deliver the manufactured products intended for exportation directly either to the bureaus of the port of departure or to the manufactory of alimentary pastes, according to the exception laid down in paragraph 2 of section 2. The customs officers shall have the right to control all of these operations.

The remaining articles of the law provide penalties for false declarations, repeal former enactments governing the same subject, and extend the new law to Algeria.

ROBERT P. SKINNER,
Consul-General.

MARSEILLES, *February 11, 1902.*

COMMERCE OF FRANCE IN 1901.

According to the French customs statistics, the commerce of France (commerce spécial*), taking the importations and exportations together, amounted, in 1901, to $1,713,977,609, as compared with $1,699,654,693 for the previous year, an increase of $14,322,916.

The three principal groups of importations were divided as follows:

Description.	1901.	1900.	Increase.	Decrease.
Food products	$154,699,343	$158,113,320	.....	$3,413,977
Raw materials	602,989,707	585,803,443	$17,186,264	.....
Manufactured products	152,218,714	162,759,023	.....	10,540,309
Total	909,907,764	906,675,786	3,231,978	.....

IMPORTS OF FOOD PRODUCTS.

The receipts of food products show a falling off of $3,413,977 as compared with 1900, due principally to the decreased importations of rice, table fruits, wines of all kinds, beer, cocoa, tea, fresh and salted meats, fat (including margarin and butter), and cheese. The following showed an increase in importations: Cereals (grain and flour), of $9,737,043; sugar, $176,788; coffee, $591,159; and cattle, of $1,748,387.

IMPORTS OF PRINCIPAL RAW MATERIALS.

In the following table are shown receipts of the principal raw materials for the year 1901 and comparisons with the year 1900 and with the average receipts for the past four years:

Article.	1901.	Compared with 1900.		Compared with the average of last 4 years.	
		Increase.	Decrease.	Increase.	Decrease.
Hides	$27,567,927	.....	$3,505,845	.....	$1,227,094
Raw wool	112,123,736	$23,674,983	.....	$29,615,078	.....
Hat feathers	6,957,264	.....	703,485	.....	794,002
Raw silk	56,263,167	8,391,061	.....	2,271,048	.....
Jute	6,980,231	1,348,298	.....	786,475	.....
Hemp	3,566,640	.....	162,313	360,331	.....
Linseed	12,375,353	.....	3,571,658	690,168	.....
Cotton	52,982,518	4,938,870	.....	14,450,682	.....
Paper-making materials	10,343,642	1,580,477	.....	3,243,365	.....
Nitrate of soda	9,315,145	.....	2,260,802	.....	259,199

*Commerce spécial: Imports entered for consumption and exports of French products.

Article.	1901.	Compared with 1900.		Compared with the average of last 4 years.	
		Increase.	Decrease.	Increase.	Decrease.
Oleaginous seeds	$39,338,225	$2,939,197		$9,024,680	
Vegetable oils	4,770,381		$476,903		$1,167,843
Crude rubber	9,819,454		371,332	1,789,496	
Tobacco	6,455,657	154,207		353,576	
Wood, for building	24,472,400		1,332,086	720,662	
Staves	7,183,074	839,164		2,402,078	
Dyewoods	1,531,069		800,564		436,952
Petroleum, crude and refined	9,511,812	910,960		1,273,993	
Heavy oils	1,767,108	82,025		154,593	
Coal and coke	74,791,939		3,726,830	23,563,563	
Ores	16,035,791	503,151		1,474,713	
Copper	16,100,446		4,728,886		644,234
Pig iron	1,556,738		2,060,468		504,116
Iron and steel	3,514,337		2,080,540		23,546

The wool receipts during 1901 were the largest as to value for the past ten years, which indicates that the wool industry is recovering from the serious crisis through which it passed in 1900. The increases in the receipts of raw materials for the silk, cotton, paper, and soap making industries were also noticeable in 1901. The falling off in the coal receipts was due principally to the lower prices which prevailed and to the increased output of the native mines. The importations of coal in metric tons were 12,499,590 in 1901 and 13,029,525 in 1900; of coke, 1,429,530 tons in 1901 and 1,572,455 tons in 1900.

IMPORTS OF MANUFACTURES.

In the following table are shown the receipts of the most important manufactured articles in 1901, together with comparisons with the year 1900 and with the average imports for the past four years:

Article.	1901.	Compared with 1900.		Compared with the average of last 4 years.	
		Increase.	Decrease.	Increase.	Decrease.
Pottery and glassware	$7,670,206		$2,014,534		$528,820
Chemical products	13,954,479		1,488,802		79,902
Silk fabrics	13,888,473	$1,920,543		$1,814,200	
Wool fabrics	7,689,892		411,862		72,182
Cotton fabrics	9,304,723		33,196		716,609
Paper, books, and engravings	7,261,432	244,724		1,033,708	
Machines	23,590,776		3,997,187	2,051,297	
Gold and silver and plated ware	3,633,625		64,076	303,782	
Tools and metal work	6,851,500		1,283,836	135,100	
Wagons and carriages	2,027,334		2,706,825		799,406
Steel and iron vessels	3,026,047		213,265		146,680

IMPORTS BY COUNTRIES.

The following is a list of the principal countries of the world from which France imported merchandise during 1901, arranged in the order of their value:

Country.	Value.	Compared with 1900.	
		Increase.	Decrease.
Great Britain	$128,812,796		$1,416,198
United States	93,002,261		5,537,222
Germany	80,613,591		1,793,742
Belgium	74,540,846		6,891,644
Argentine Republic *	69,240,294	$14,248,611	
Russia	42,305,986		2,333,527
Spain	32,438,282		10,017,279
Italy	28,985,126	288,535	
Turkey	21,371,469	568,964	
Switzerland	20,067,175		628,022
Austria-Hungary	17,101,730	82,604	
Brazil	14,304,581		924,896

* Increase occurred in the imports of wool.

EXPORTS.

The exports by groups were:

Description.	1901.	1900.	Increase.	Decrease.
Food products	$150,201,671	$146,675,947	$3,525,724	
Raw materials	210,570,823	211,135,438		$564,525
Manufactured goods	398,104,188	393,592,427	4,511,761	
Postal packages	45,193,073	41,575,095	3,617,978	
Total	804,069,845	792,978,907	11,090,938	

The excess of the imports over the exports in 1901 was $105,837,919. The increase in the value of the exports of food products was due to the enlarged exportations of raw sugar, which amounted to $22,420,231, as compared with $18,778,514 in 1900, an increase of $3,641,717; to the exports of refined sugar, valued at $11,330,837, against $11,128,097 in 1900, an increase of $202,740; and to the increased exports of meat, those for 1901 being $4,838,124, an increase of $240,478. Wines were stationary at $43,977,594, farinaceous products at $5,943,435, and green vegetables at $3,603,117. Those articles showing a decrease in the exports were table fruits, which lost $557,391; fish, $7,207,199, a loss of $557,391; and butter, $11,390,860, a loss of $422,477.

EXPORTS OF RAW MATERIALS.

In the following table are shown the exports of the principal raw materials during 1901 and the differences as compared with the year 1900 and the average exports for the last four years:

Articles.	1901.	Compared with 1900.		Compared with the average of last 4 years.	
		Increase.	Decrease.	Increase.	Decrease.
Ores	$7,300,225	$1,282,678	.....	$1,598,426	.....
Pig iron, iron, and steel	6,606,004	1,179,423	.....	502,186	.....
Copper	7,180,732	.....	$1,915,911	.....	$2,622,291
Vegetable oils	3,920,602	17,370	.....	.....	490,220
Paper-making material	6,300,871	28,178	.....	85,885	.....
Hides	25,660,316	4,496,321	.....	3,847,455	.....
Wool	40,296,277	1,374,932	.....	.....	1,579,898
Raw silk	24,683,156	.....	1,505,786	.....	2,453,030
Wood	9,095,125	.....	486,939	489,641	.....
Coal and coke	4,761,696	.....	1,494,206	.....	582,088

The increased value in the exports of hides was due chiefly to the enlarged quantities sent to Great Britain, Belgium, and the United States. A part of those exported to Great Britain was in all probability reexported to the United States.

EXPORTS OF MANUFACTURED ARTICLES.

The value of manufactured articles exported in 1901 was $398,104,188, an increase of $4,492,461 as compared with 1900.

In the following table are shown the principal manufactured products exported in 1901 and a comparison with previous years:

Article.	1901.	Compared with 1900.		Compared with the average of last 4 years.	
		Increase.	Decrease.	Increase.	Decrease.
Silk goods	$54,090,373	$4,279,389	.....	$3,047,856	.....
Wool goods	45,246,727	1,393,653	.....	.....	$2,016,271
Cotton goods	35,399,095	1,733,719	.....	6,605,811	.....
Wool thread	4,996,191	.....	$1,678,135	.....	1,046,060
Leather	20,291,827	.....	1,766,722	.....	1,744,913
Manufactured leather goods	13,024,798	.....	641,725	.....	966,351
Gold, silver, and plated ware	7,119,963	.....	71,022	1,689,329	.....
Machinery	11,479,447	.....	749,612	686,887	.....
Tools and metal goods	20,155,569	3,316,512	.....	3,881,809	.....
Articles de Paris	29,258,993	57,321	.....	3,285,825	.....
Millinery and artificial flowers	25,085,347	2,765,690	.....	13,287,278	.....
Women's dresses	16,268,356	604,283	.....	.....	2,894,228
Paper, cardboard, books, etc	10,621,176	157,488	.....	899,150	.....
Glassware and porcelain	12,459,694	827,777	.....	2,328,159	.....
Chemical products	17,818,532	706,959	.....	2,044,256	.....

The statistics in the above table indicate that France is not losing ground in the world's trade in those manufactured products for which she is famed, such as articles of luxury, silk goods, millinery and artificial flowers, women's dresses, etc. The exports of tools and metal goods also showed a noticeable increase.

EXPORTS BY COUNTRIES.

The values of the exports from France to the principal countries in 1901, arranged in the order of their importance, were:

Country.	Value.	Compared with 1900.	
		Increase.	Decrease.
Great Britain	$243,984,810	$7,057,624	
Belgium	115,128,553		$335,038
Germany	89,028,198		750,384
United States	46,226,202		3,028,170
Switzerland	43,699,060	2,882,069	
Italy	32,117,130	2,071,855	
Spain	24,468,540		1,647,255
Argentine Republic	9,872,143	288,149	
Turkey	9,325,567		279,657
Russia	8,487,175	882,589	
Brazil	6,245,287		1,038,919
Austria-Hungary	4,103,759	592,703	

TRADE OF FRANCE WITH THE UNITED STATES.

While the United States continues to be one of the best customers of France in the articles which add to the comfort and refinement of living, the exports of the following products to the United States show a falling off as compared with previous years: Gloves (nearly 36 per cent), hat feathers, articles de Paris, wines, leather goods, glassware, prepared skins; paper, books, and engravings; fresh, salted, and canned vegetables; oils and essences, bristles, perfumery, and other articles. The exports to the United States of silk fabrics remained nearly stationary. Those articles in which there was an augmentation in the exports were woolen goods, artificial flowers, millinery, dresses, linen and cotton goods, objects for collections, musical instruments, plants, trees, and grindstones.

The United States stood second on the list of those nations from which France purchased her supplies in 1901 and fourth in the list of purchasers of products of French origin. In 1901, France imported $93,002,261 worth of goods from the United States and exported $46,226,002 to the United States, a balance in our favor of $46,776,259.

A. M. THACKARA,
Consul.

HAVRE, *February 20, 1902.*

SHIPBUILDING IN FRANCE IN 1901.

According to the statistics recently furnished by Lloyd's Register, the shipyards of the world in 1901 built 1,661 vessels, measuring 3,085,086 tons gross. With the exception of Great Britain, these figures do not include vessels of less than 100 tons. As compared with 1900, the world's naval construction showed an increase of 198 vessels and 520,459 tons.

The four leading nations in shipbuilding were Great Britain, with 680 vessels and 1,736,708 tons; the United States, with 303 vessels and 481,138 tons; Germany, with 117 vessels and 284,063 tons; and France, with 111 vessels and 232,404 tons.

In 1899, there were built in France 155,674 tons, of which 65,880 tons were war vessels and 89,794 tons merchant vessels; in 1900, 213,838 tons, of which 48,490 tons were war vessels and 165,348 tons merchant vessels; and in 1901, 232,404 tons, of which 54,861 tons were war vessels and 177,543 tons merchant vessels.

At first glance, it would appear that the results for the past year were satisfactory, as they indicate an increase in the tonnage built both for the national and for the merchant marines; but by consulting the following table, it will be seen that of the total tonnage constructed in France in 1901, no less than 73 sailing vessels, measuring 124,628 tons, were launched, and only 19 steamers, of 52,915 tons. In other words, the tonnage of sailing vessels built in France in 1901 was 70 per cent of the total merchant output of the French shipbuilding concerns.

If the 13 steamers, of 20,609 tons gross, which were constructed in Great Britain for the account of French owners be considered, the increase of French merchant tonnage would then be 73 sailing vessels, measuring 124,628 tons, and 42 steamers, of 73,524 tons, or a total of 198,152 tons, and the proportion of sail tonnage would be 63 per cent.

Shipbuilding in France in 1901.

Place.	Steamers.		Sailing vessels.				War vessels.	
	Steel.		Steel or iron.		Wood.		Steel.	
	No.	*Tons.*	*No.*	*Tons.*	*No.*	*Tons.*	*No.*	*Tons.*
Havre and Rouen	8	24,871	4	11,020	.....	.....	.....	.....
Nantes and St. Nazaire	6	17,436	43	100,041	1	721	.....	.....
Bordeaux	.....	.....	3	7,453	.....	.....	.....	.....
Mediterranean coast	4	10,008	.....	.....	2	356	.....	.....
Other ports	1	600	.....	.....	20	5,037	.....	.....
Total	19	52,915	50	118,514	23	6,114	19	54,861

Or a grand total of 19 steamers, 73 sailing vessels, and 19 war vessels, with a tonnage as follows:

	Tons.
Steamers	52,915
Sailing vessels	124,628
War vessels	54,861
Total	242,404

Forty-nine vessels, each of 2,000 tons gross and upwards, were launched in France in 1901, of which the largest was the *Leon Blum*, of 3,200 tons, built near Rouen.

Comparison of shipbuilding in France, Germany, and Great Britain in 1900 and 1901, men-of-war not included.

Country.	Steamers.		Sailing vessels.		Total.		Percentage of sail tonnage of total tonnage.	
	1900.	1901.	1900.	1901.	1900.	1901.	1900.	1901.
	Tons.	*Tons.*	*Tons.*	*Tons.*	*Tons.*	*Tons.*		
Great Britain	1,432,600	1,501,078	9,871	23,661	1,442,471	1,524,739	0.7	1.5
Germany	195,518	209,484	8,813	8,109	204,731	217,593	4.3	3.7
France	19,894	52,915	96,864	124,628	116,758	177,543	83	70

From the above table, it will be seen that while sail tonnage formed a small part of the output of Great Britain and Germany in the last two years, in France the proportion which the sail tonnage bore to the total construction was 83 per cent and 70 per cent, respectively. The building of sailing vessels in France has been greatly encouraged by the liberal bounties granted to such vessels by the present subsidy law of 1893. By the new act, which has recently passed the Chamber of Deputies and is now before the Senate,* the bounties to sailing vessels of over 800 tons gross will be greatly decreased, the bounties to French-built steamers materially increased, and a bounty will be granted to modern French steamers built abroad.

A. M. THACKARA,
Consul.

HAVRE, *February 4, 1902.*

PROSPECTS FOR AMERICAN COAL IN FRANCE.

The first cargo of United States coal ever received at Rochelle is now being unloaded at the basin of La Pallice. This is the first installment on a contract for several thousand tons, and is to be used by locomotives.

The cargo, after its long voyage, was found to be in good condition, containing, it is estimated, from 40 to 50 per cent of lumps.

*See ADVANCE SHEETS No. 1267.

Accordingly, the impressions made by it are very favorable. The trials of this coal, which are not yet completed, are giving splendid results and promise to be satisfactory in every way. This lot of coal was sold to the French purchasers by an important house at Cardiff, the transaction being greatly facilitated by exceptionally low freight rates.

Samples of United States coal have several times been sent to this consular district, but have always arrived in a poor condition—containing about 80 per cent dust—which has given American coal the reputation of being extremely friable. Even with this handicap, however, the coal proved to be of excellent quality.

Up to the present time, the coal supply for this region has come from Cardiff or Newcastle. On the arrival of a cargo, it is carefully assorted for the various uses to which it is intended—whether for locomotive, factory, or for domestic purposes. The dust, mixed with tar, is pressed into briquettes.

The general outlook for American coal is very encouraging. A very slight diminution of price in many instances may secure important business. The quantity annually imported into this consular district is about 700,000 tons. Of this, the proportion of anthracite is small, on account of high prices. Bituminous coal, with the highest possible per cent of carbon and the lowest per cent of volatile matter, is in great demand. Prices should not exceed 23 or 24 francs ($4.43 or $4.63) per ton c. i. f. La Rochelle.

GEORGE H. JACKSON,
Consul.

LA ROCHELLE, *January 28, 1902.*

FRENCH COAL-WASHING APPARATUS.

The growing scarcity of coal in European countries makes it necessary to take advantage of every bushel of combustible matter coming from the mines. A recently perfected process is said to utilize the whole product. The following description will doubtless be of interest to coal and coke producers of America:

MAURICE CENTRIFUGAL COAL WASHER.

The process is adapted for the treatment of coal in which slates appear so thin and so mixed with the coal that the washing thereof was considered impossible by other mechanical processes. Notwithstanding this difficulty, the result obtained has been very satisfactory; for, treating the slaty coal extracted from a mine near St. Etienne (carrying from 28 to 30 per cent of ash and slate), this machine obtained a washed coal containing not more than 9 per cent, as shown by the statement below.

First operation.—Two thousand eight hundred and fifty-two tons containing 30 per cent residue gave 1,550 tons containing 9 per cent residue and 1,302 tons containing 55 per cent residue.

Second operation.—One thousand three hundred and two tons containing 55 per

cent residue gave 525 tons containing 18 per cent residue (coal for boilers) and 777 tons slate.

A machine occupying a space of 36 square feet will wash from 4 to 10 tons of dirty coal per hour, according to quality, and requires only about 3 horsepower to operate.

In ordinary cases, experiments showed that the "Maurice coal washer" will treat all kinds of coals with the least possible expense of water and assures a larger production than any other machine, space and power considered; and that it dispenses entirely with the necessity of sizing, as it can wash coal containing a great quantity of dust, after this has been passed through a screen of 1 inch diameter. Further, it gives no slime and there is no loss of coal in this way. It is claimed also for this apparatus (which is operating in one of the large iron and steel works of this region) that it acts more freely on the iron pyrites than any known process.

A special adaptation of the same process has been made for the treatment of auriferous sands.

The above report was furnished me at my request by Mr. King, 23 boulevard des Italiens, Paris, who is the agent of the Maurice patent coal-washing machine and has recently visited the works of "Les Etablissements de l'Horme et de la Buire," near St. Etienne, where these machines are made.

HASTINGS BURROUGHS,

ST. ETIENNE, *January 30, 1902.* *Vice-Consul.*

PETROLEUM BRIQUETTES IN FRANCE.

Owing to numerous inquiries received, I think it well to supplement my former report on the subject of petroleum briquettes* by some additional information in regard to their manufacture and uses.

The briquettes are mostly composed of petroleum, crude or refined, and possess all the advantages of coal and petroleum without the inconveniences of either. They weigh one-half as much as coal; leave only 2 to 3 per cent of residue; do not form clinkers; do not melt or run; burn without smell or smoke; do not absorb moisture; will float on the water (density, 0.850); do not explode and are not liable to spontaneous combustion under any circumstances; will keep indefinitely, retaining all their qualities of combustion; give off a very white flame 8 to 10 inches high; produce twice as much heat as coal; can be used in any kind of furnace; and are easy and agreeable to handle.

MODE OF MANUFACTURE.

The manufacture of these briquettes is very simple. They are made without heat and no danger attends the operation.

The petroleum is placed in one tank and the chemicals in another, and both are allowed to run into a mixing apparatus, when the chemical combination is formed immediately. The product is then passed

*ADVANCE SHEETS No. 1236; CONSULAR REPORTS No. 258, p. 338.

to a press, where the desired form is given; the briquette is now ready for use or it can be stored. The pressure used in molding the forms is about 300 pounds per square inch.

As will be seen, the mode of procedure is very simple and the necessary plant very inexpensive, requiring only tanks, mixer, and press, with small motor power for the latter two. Works erected at a cost of, say, $20,000 would turn out several hundred tons a day.

The use of this chemical combination as a binder and enricher solves a difficulty frequently encountered in the making of coal-dust or sawdust briquettes.

USES AND ADVANTAGES.

The petroleum briquette is especially suitable for torpedo boats and as emergency fuel on larger vessels; for its density, as compared with coal, will allow a steamer to accomplish twice as great a distance as with the same volume of coal. If a boat, for instance, takes 2,000 tons of coal to steam a certain number of miles, it would require only 1,000 tons of petroleum briquettes to cover the same distance; consequently, that vessel would be able to carry 1,000 tons more fuel, or an equivalent amount of cargo.

A boat using petroleum briquettes could get up steam in one-fourth or one-third of the time required by coal. Further, a boat steaming with petroleum briquettes would show no smoke, which is important to naval vessels under many circumstances.

Petroleum briquettes can be used for any kind of domestic or industrial work without changing the furnaces; for fire engines, where the rapid raising of steam is of great importance, these briquettes would seem to be the ideal fuel.

As to the cost of manufacture, it appears that the oil is the greatest item, that of the other ingredients, labor and machinery, being comparatively little.

It is impossible for me to comply with the requests for samples received from numerous American correspondents, as the inventors will give none. Neither can the character of the chemicals used nor the exact process of mixing be learned. However, I may aid those interested by giving the address of the recently appointed American agent of the company, viz, Mr. King, 23 boulevard des Italiens, Paris.

After the careful experiments made by French authorities, the fact that these briquettes are likely to be adopted by the Government would indicate that they are considered a success.

As to the price, it is estimated that they could be sold for 8 francs per 100 kilograms ($1.54 for 220 pounds)—in other words, $14 per short ton.

HILARY S. BRUNOT,

ST. ETIENNE, *February 19, 1902.* *Consul.*

FRENCH CANDY INDUSTRY.

Consular Clerk Glavis sends from Paris, January 14, 1902, the following data, taken from a local newspaper, in regard to the French candy industry:

France annually produces about 65,000,000 kilograms (143,299,000 pounds) of chocolate and bonbons in about equal quantities. During the year 1900–1901, the production amounted to 66,138,000 pounds of bonbons and 77,161,000 pounds of chocolate, the average price being 3 to 4 francs (58 to 77 cents) per kilogram (2.2 pounds). Only about one-tenth of this quantity is exported. The chief centers of manufacture are Paris, Bordeaux, and Lyons. There are also chocolate factories at Blois, Lille, and Amiens, and a factory for candied fruit at Clermont-Ferrand. "Marrons glacés" are mostly prepared in the Ardèche, Gard, Rhône, and Cantal. French producers complain of the high duties on sugar and cocoa. The latter pays 104 francs ($20.07) per 100 kilograms (220 pounds), and sugar 60 francs ($11.68) per 100 kilograms (220 pounds). Allowing for the waste in the preparation of the bean, the cocoa really pays 135 francs ($26.05) per 100 kilograms (220 pounds). In France, the kilogram (2.2 pounds) of chocolate confectionery pays 95 centimes (18.3 cents) in duty alone. The sweetmeat manufacturer has another difficulty to contend with in the uncertainty of the fruit and nut harvest, failure of which often swallows up all his profits by raising the price of the raw article. Almonds and nuts are especially sensitive to weather conditions.

Great Britain produces still more sweet stuffs than France. A vast quantity of British bonbons is exported, supplying Africa, India, the Far East, and America.

Germany holds the third rank, and is constantly increasing her output. Every year, Hamburg receives a larger quantity of sugar and cocoa beans, and clears more ships laden with the confectioners' wares.

Quite one-half of the total consumption of chocolates and bonbons in France takes place in December and January, the French people spending something like 100,000,000 francs ($19,300,000) in two months on confectionery, and every year this figure grows.

TIMBER TRADE AND GOVERNMENT FORESTS IN FRANCE.

Under date of January 23, 1902, Consul Haynes, of Rouen, reports as follows:*

In France, the State itself is the greatest of landed proprietors and timber dealers. The State owns 2,500,000 acres of forest land and 5,000,000 acres more are the property of the communes and municipalities. These form an immense public estate, the larger part of which is carefully looked after at great cost. The yearly expense of administration (in which is comprised the maintenance of a corps of forest guards of 8,000 men) has averaged in the past twenty

* In reply to inquiries by a Western firm, to which the original was sent.

years $2,500,000; but the revenue from the State forest lands alone (2,500,000 acres) has doubled and sometimes trebled that sum. This revenue comes from the sales of wood, of which there is an average yearly production of 4,000,000 cubic meters (141,266,400 cubic feet).

In the Department of the Seine-Inférieure, 15 per cent of the area is covered with forest, forming an immense timbered estate of 231,000 acres, administered by the Government. Excellent roads traverse these forests in every direction, with numerous minor roads branching from them, straight and well kept, cut with the sole view of facilitating the transport of timber.

Transport forms a chief element in the cost of such wood products as are imported, mostly for building purposes, into this port. The cost of a standard (165 cubic feet) of white pine is now a little over 200 francs ($38.60) at Rouen. Its conveyance by sea from a Swedish or Russian port may be put at 60 to 65 francs ($11.58 to $12.54). The carriage from the forest to the port of embarkation, though a more variable quantity, may be averaged at 60 to 70 francs ($11.58 to $13.51) more. Transport, therefore, of timber for building purposes enters into the cost to the extent of 60 to 70 per cent.

The price of wood in Paris is 75 per cent higher than in this city, and the canal connection between the two places, which is unsurpassed, keeps railway freight rates very low. Timber can be discharged in Rouen directly from vessels into lighters and dispatched by cheap water carriage to Grenouille for the south of France, or to Roanne, in the Department of the Loire. At both these places the railway joins the canal, and by them the timber is sent to its destination. The position of Rouen upon one of the main navigable water ways of the country has always made it a favorable port for the timber trade. Vessels carrying more than 4,500 tons of petroleum and drawing over 23 feet of water have often entered here, and frequently more than forty ships drawing 21 feet and over have entered during the year.

PRACTICAL APPLICATION OF SCIENTIFIC EDUCATION IN GERMANY.

It is the common belief that the commercial rise of Germany has been largely due to the results of the Franco-Prussian war, which put money into its coffers and stimulated the energies of the people. Doubtless much of Germany's phenomenal success of the last quarter of the past century was due to this event; but in order to gauge accurately the nation's capacities and aims, it is necessary to look farther back than 1870–71.

It is perhaps unnecessary to say that the whole standard of education in Germany is higher than in either the United States or England, and technical education had its beginning in Germany long before the Franco-Prussian war.

Sixty years ago, Liebig had fifty students working in his factory, and all of the German universities have had their own chemical laboratories since 1827. To-day, there are in German factories 4,500 thoroughly trained chemists, besides more than 5,000 assistants, whose brains are constantly at work upon the problems of improving processes, lessening the cost of production, etc.

The sugar industry illustrates the practical application which the Germans make of their educational system. In 1840, 154,000 tons of beet root were crushed, from which 8,000 tons of raw sugar were produced, showing about 5½ per cent of raw sugar extracted from the root. Twenty years later, 1,500,000 tons were treated which produced 128,000 tons of sugar, or about 8 per cent. Last year, about 12,000,000 tons were crushed, which produced 1,500,000 tons of raw sugar, raising the percentage to 13. This advance is due entirely to scientific treatment.

The production of dry colors, chemicals, and dyes in Germany shows a corresponding increase in product and in dividend-paying capacity. Comparing the statistics of the dyeing industry of the year 1874 with those of 1898, it is found that notwithstanding prices in 1898 were considerably lower than in 1874, the net income in 1874 was 24,000,000 marks (about $6,000,000) and in 1898 was 120,000,000 marks (about $30,000,000). The great increase of earning capacity is due largely to the constant labor of trained men, who by application of their technical knowledge have so cheapened production that they have succeeded in getting this trade away from the English, who formerly controlled it. Another illustration is found in the manufacture of artificial indigo, a chemical process for making which was discovered in Germany about thirty-five years ago. It was started with less than 40 workmen, all told. It now employs over 6,000 men, and has a staff of 148 scientific chemists; and by placing this substitute upon the market at a very low price they have nearly ruined the natural-indigo industry of India.

The Germans have also discovered a method for obtaining ground slag from steel processes, which is used as a fertilizer; and England, although she produces as much steel as Germany, has become a good customer for this article.

The Krupp gun industry is another instance of this progress, too familiar to need description; but the latest is the discovery by a German chemist, by the name of Giebler, of a process of hardening steel which makes it, it is said, 14 per cent stronger, 50 per cent lighter, and one-third less costly than the Krupp, Harvey, or Boehler

steel. The inventor will not sell the secret of the process to any foreign manufacturer, but will retain it for the benefit of Germany. This, if true, will give this country an enormous advantage in naval matters; for, with a lighter hull, lighter machinery, and lighter guns, a very much higher rate of speed can be produced for a given consumption of fuel, which means also an enlarged steaming distance.

A century ago, the English and French makers of scientific instruments were far in advance of the Germans. During the last twenty years, all this has changed. The value of the exports from Germany of scientific instruments for the year 1898 was about $1,250,000—three times what it was in 1888—and the work gave employment to 14,000 people.

These are a very few of the many instances showing the close connection between the scientific education of the German people and their commercial prosperity.

The conclusions to be arrived at from the foregoing are not so much academic as economic and practical. In Germany, a young man is called upon to decide, early in his career, whether he will take a classical or a scientific course. If he decides to take the latter he goes into the "Real Schule," or lower scientific school, to be elevated thence to the "Real Gymnasium," or scientific high school, and thence to the "Polytechnicum," or institute of technology, which is separate from the universities. In this course, he has no Greek and only a moderate amount of Latin; but he has the sciences, engineering, mathematics, modern languages, history, and a mixture of practical and theoretical training in various technical branches, with frequent excursions for the purpose of inspection of work in factories and public enterprises. The faculties of these institutions keep in touch with the manufactories, and when capable young men graduate they easily find situations. This is also true of the technical high schools, of which there are twenty-four, which likewise have courses in engineering, architecture, drainage, irrigation, modeling, drawing, chemistry, modern languages, history, etc. The questions for the people of the United States are: Is our system of education as perfected as it should be? Have we sufficient scientific education of the best grade, and are our educational institutions in close enough touch with the manufactories to supply their needs? If not, are we not hampered in competition with our great commercial rival, which enjoys this complete cooperation?

The Imperial Department of Commerce and Industries has been of great assistance to the German manufacturer. It has been an intermediary between the educational and practical work, guiding the one, sustaining the other, and providing information to the manufacturer, first in beginning his industry, later in expanding it, and finally in marketing his surplus.

We should not rely too much on our unrivaled natural resources in the struggle for foreign trade. No country can rest in fancied security. What is the cheapest and best to-day may be made cheaper and better by our rival to-morrow, with its human plant of half a hundred thousand trained scientific brains working daily and steadfastly.

EDWARD H. OZMUN,
STUTTGART, *February 10, 1902.* *Consul.*

GERMAN CHAMBERS OF COMMERCE FORBIDDEN TO GIVE INFORMATION.

A recent law enacted by the Saxon Landtag (Parliament) prohibits the Chamber of Commerce and Export Association of Dresden and all similar business associations in Saxony from giving information of any character to the representatives of any foreign country.

This measure is so stringent, and its terms are so strictly enforced, that when, on a recent occasion, I went with letters from merchants in the United States asking where they could purchase certain kinds of goods, the secretary of the chamber of commerce declined to give me the names of manufacturers, but was willing to send a copy of the letter to those located in this consular district, with a view of having them correspond direct with the writer.

It will doubtless be difficult and sometimes impossible, in future, to answer many of the inquiries that reach this consulate from the United States.

CHAS. L. COLE,
DRESDEN, *February 11, 1902.* *Consul-General.*

AMERICAN FLOUR IN GERMANY.

There has been a decline in the exports of American flour to Europe during 1901. I am informed by flour dealers in this section that Germany has been importing the best quality of flour direct from American mills, and that this, although high in price (the duty alone being 7.30 marks per 100 kilograms, or $1.74 per 220 pounds), found a ready market until difficulties with the marine-insurance companies arose. These now stipulate in their contracts that on shipments of flour via Amsterdam and Rotterdam claims for damage are payable only if amounting in any one shipment to 6 guilders ($2.41) on white flour and 7½ guilders ($3.01) on flour of other cereals; and on all bags damaged, an average allowance of 12½ per cent is agreed upon for white flour and 35 per cent for meal.

Of this change in the insurance clause, the German flour merchants were not notified and in cases of damage were great sufferers, receiving only 12½ per cent, while the actual loss was considerably higher.

American mill owners should have the matter investigated. It is also said that the railway and steamship lines charge disproportionately high freight rates for flour in comparison with wheat.

Flour dealers in this section, after having taken great pains to introduce our product, should be offered every facility to continue handling this important article.

MAX BOUCHSEIN,

BARMEN, *January 30, 1902.* *Consul.*

GERMAN MARKET FOR AMERICAN HATS.

Stiff felt hats of modern shapes, in black and brown, with light, tan-colored sweat bands (no dark colors), fancy white satin linings, with gold-stamped designs, and good black ribbon bands, selling at about $12 per dozen c. i. f. Hamburg or Bremen, will find a ready market in Germany. A local dealer informs me that particular attention should be paid to a fancy "get-up" rather than to quality. Straw hats with high crowns and straight, stiff rims, costing from $6 to $9 per dozen wholesale c. i. f. Hamburg or Bremen, will also find a remunerative market. The foreign hats sold in Stettin are of French or English make, stiff hats retailing at from 5 to 9 marks ($1.19 to $2.14) and straw hats at from 2 to 5 marks (47.6 cents to $1.19).

An attempt to deal direct with the retailer would prove unprofitable, as dozen-lot orders would be very common. The business should be placed in the hands of agents, with either Hamburg or Bremen as the principal distributing point. Letters addressed to this consulate will be handed to a gentleman who desires to secure such an agency.

The German import duty on hats is as follows:

	Marks.	
Men's felt hats, trimmed or untrimmed.....per 100 kilograms*...	180.00=	$42.80
Straw hats:		
Trimmed .....each...	.40=	.094
Untrimmed .....do.....	.20=	.047

JOHN E. KEHL,

STETTIN, *January 28, 1902.* *Consul.*

*220.46 pounds.

PRUSSIAN INCOME TAX.

Under date of January 30, 1902, Ambassador White, of Berlin, forwards the following statistics concerning the Prussian income tax and its assessment in 1901, collected from official returns by Mr. Dodge, second secretary of the embassy:

The law under which the Prussian income tax is levied went into effect June 24, 1891. Roughly speaking, all incomes of more than 900 marks ($214.20) a year are taxed. Incomes from 900 marks up to 10,500 marks ($214.20 up to $2,499) are divided into twenty-six classes, the tax rising from 6 marks ($1.43) annually for the lowest class to 300 marks ($71.40) for the last. Incomes of more than 10,500 marks ($2,499) are taxed upon a special and more rapidly progressive scale. Under the application of the law, the number of persons liable to taxation has continually risen, and, except during the second and third years, the amounts yielded by it to the State have also steadily increased. By a law passed July 2, 1900, this law was extended to the so-called "Hohenzollern lands" in South Germany, so that it now affects the whole Kingdom of Prussia, with the exception of the Island of Heligoland. According to the census of 1890, the population of Prussia was then in round numbers 29,900,000; according to the census of 1900, it had risen to 34,400,000—an increase of over 13 per cent. During the decade 1892–1901, the income-tax statistics show the following increases:

In 1901, the total population liable to the tax was 3,649,188; the total value of their incomes liable to the tax was 8,854,182,261 marks ($2,107,295,378), and the total amount of the income tax was 186,188,684 marks ($44,479,507). As against the statistics for 1892, the number of those liable to the tax showed an increase of 49.69 per cent (an increase of 7.98 per cent as against 1900); the amount of income, an increase of 48.53 per cent (an increase of 7.34 per cent as against 1900); and the amount of the income tax, 49.7 per cent (an increase of 7.17 per cent as against 1900). In 1901, the number of "nonphysical" persons—*i. e.*, corporations, etc.—liable to the income tax was 2,661, with incomes liable to the tax of 478,124,483 marks ($113,793.627), paying an amount of 18,761,584 marks ($4,465,257). The number of physical persons liable was 3,646,527, with incomes liable to the tax of 8,376,057,778 marks ($1,993,501,751), of which 5,856,100,000 marks ($1,393,751,800) came from towns and 2,519,950,000 marks ($599,748,100) from the country. It will be noticed from the above that while the population of Prussia has increased during the last decade to the amount of, roughly, 13 per cent, the number of persons liable to the income

tax has increased over 49 per cent. While the total of their incomes has risen in about the same proportion, the average of their incomes has diminished, the diminution since 1900 being 24 marks ($5.71). This shows clearly that the number and amount of the smaller incomes have increased in greater proportion than those of the larger ones. An example of this increase is the number of persons having incomes of more than 3,000 marks ($714), which since 1900 has risen only 5 per cent—from 413,800 to 435,700.

THE INDIGO MARKET IN 1901.

According to the report of a Hamburg-Calcutta firm, the year 1901 witnessed a slow but steady increase in the prices of natural indigo, with a relatively satisfactory business. Toward the end of summer, however, the demand slackened, due in a measure to the fact that the large color works of Höchst u. Ludwigshafen offered artificial indigo at greatly reduced prices, in order to reduce its stock.

The report calls attention to the wisdom of giving preference to the natural product when prices are satisfactory, and states that should producers be compelled to discontinue the cultivation of indigo on account of its unprofitableness, consumers would become entirely dependent upon the color manufacturers, who would probably combine and raise prices, as was done in the case of alizarin blue.

Owing to the improved method of production, natural indigo will at least remain an equal rival of the synthetic product, and advices from Calcutta regarding the new crop quote prices which will allow the natural product to successfully compete with the artificial.

The finer qualities of Bengal indigo were again least affected by fluctuations of prices. The limited supply found a ready market. The greatest demand was for medium qualities, and the stocks have been much reduced. Java indigo maintained its preferred position and brought relatively high prices. Of the new crop, a considerable quantity is said to have been already sold at high prices for future delivery.

The stock on hand in Europe amounted to 9,000 cases at the end of the year 1901, against 8,500 cases in 1900, 10,000 cases in 1899, 13,500 cases in 1898, 19,000 cases in 1897, and 14,000 cases in 1896.

WALTER SCHUMANN,

MAINZ, *February 5, 1902.* *Consul.*

ANTWERP IVORY MARKET.

The first quarterly ivory sale closed February 5, the ivory offered and sold being:

Description.	Amount.	Description.	Amount.
	Pounds.		*Pounds.*
Kongo:		Mozambique	169.4
Hard	107,462.3	Abyssinia	203.5
Soft	14,962.2	Benguela	179.3
Angola	41,408.4	Hippopotamus	244.2
Gaboon	9,236.7	Total	180,724.5
Kamerun	5,951		
Senegal and Gold Coast	907.5		

The sales for the corresponding quarter in previous years were:

Year.	Amount.	Year.	Amount.
	Pounds.		*Pounds.*
1901	192,993.3	1895	134,974.4
1900	159,860.8	1894	82,594.6
1899	141,171.8	1893	95,794.6
1898	126,291	1892	56,100
1897	131,381.8	1891	54,894.4
1896	144,760	1890	26,659.6

The attendance was large, and, notwithstanding the importance of the quantities offered for sale, tusks of all kinds were sold at firm prices, an increase of from 5 to 20 cents per kilogram (2.2046 pounds) being paid for bangle teeth.

The stock on hand amounts to 296,450 pounds; that for the corresponding quarter in preceding years was:

Year.	Amount.	Year.	Amount.
	Pounds.		*Pounds.*
1901	298,100	1897	134,200
1900	237,100	1896	267,960
1899	180,697	1895	173,800
1898	81,400	1894	40,700

The next quarterly sale will take place April 29.

GEO. F. LINCOLN,
Consul-General.

ANTWERP, *February 14, 1902.*

FOREIGN MARKET FOR AMERICAN PHOSPHATES.

I would call the attention of those interested to an article of export from the United States in which the trade has of late developed to such dimensions as to lead to the opinion that the business is destined to a large expansion. Reference is made to what is termed the rock phosphate of Florida, as well as to a certain quality called the Tennessee variety, coming, I understand, from the State of the same name. An individual engaged in the importation of the substance states that about 25,000 tons arrived here during the last two months, and that contracts are out at present for something like 20,000 tons of the Florida variety and for about 17,000 tons of the Tennessee, to arrive shortly.

This business, my informant states, is done through a Liverpool house and the transportation costs from 14s. 6d. to 16s. ($3.42 to $4.19) per ton from Pensacola. The freight is considered an excellent one for steamers from our southern ports, inasmuch as it furnishes excellent ballast, and vessels can ordinarily obtain additional cargoes of cotton and light bulky substances to make the voyage profitable.

It will be understood that the substance referred to is imported in the crude state and pulverized here.

My informant further states that there is nothing on the market to compare with the product above named, in cases where a high fertilizing power is demanded, and taking prevailing prices into consideration.

For ordinary purposes, this country as well as France produces a sufficient supply, but the variety produced in our country seems destined to replace the guano of Peru and the nitrates of Chile. He also states that France alone last year imported something over 200,000 tons and this year will probably take 100,000 tons more, while the demand from Baltic ports is also on the increase.

This subject is a matter which should prove of interest to capitalists contemplating the resuscitation of our merchant marine.

GEO. F. LINCOLN,
Consul-General.

ANTWERP, *February 6, 1902.*

AUTOMOBILE TRADE IN BELGIUM.

During the first eleven months of 1901, Belgian manufacturers exported to foreign countries 1,125,022 francs' ($217,129.25) worth of automobiles, motocycles, and detached parts. During the same period, only 119 vehicles (detached parts included), valued at 147,886 francs ($28,542), were imported.

The following shows the countries importing Belgian automobiles, motocycles, and detached parts, and the values:

Country.	Value.	
	Francs.	
England	398,465	$76,903.74
France	244,162	47,123.27
Holland	188,591	36,398.06
Germany	104,555	20,179.11

Belgium received from France 60 automobiles and 33 motocycles, and from Germany 6 automobiles and 5 motocycles; and delivered 48 automobiles to France, 62 automobiles and 59 motocycles to England, 18 automobiles and 13 tricycles to Germany, and 31 automobiles and 57 tricycles to Holland.

A meeting of delegates of the permanent deputations of the different provinces is to be held at Liege, Belgium, on March 1, for the purpose of establishing a uniform basis for the collection of provincial taxes on automobiles.

GEO. W. ROOSEVELT,
Consul.

BRUSSELS, *February 4, 1902.*

THE NOBEL PRIZES.

Under date of February 10, 1902, Minister Thomas, of Stockholm, calls attention to the fact that the American minister at Stockholm is not permitted, directly or indirectly, officially or unofficially, to present names for any Nobel prize; nor to present any book, drawing, model, or any other article to any Nobel committee. The minister adds:

This legation is constantly in receipt of letters from persons desirous of having their names presented for a Nobel prize. These communications are frequently accompanied by books, drawings, models, and other articles in support of the claims of the candidates, sent on the presumption that this legation is authorized to present

names for these prizes. All such efforts are rendered absolutely useless by the rules of the Nobel foundation.*

There are, however, certain individuals and institutions in the United States that are authorized to present names for Nobel prizes; but it is desired that the names of these individuals and institutions should not be made public. It is presumed that the name of anyone who has been of so great benefit to mankind as to be worthy of a Nobel prize will suggest itself to those among his countrymen who are authorized to present his name, without any solicitation or effort on his part. It is hoped that in all cases the prize shall seek the benefactor, and not the benefactor the prize.

MILK FLOUR IN SWEDEN.†

At the November meeting of the Academy of Agriculture, at Stockholm, the news was imparted of a discovery which promises to be of importance to the dairy industry of the Scandinavian countries.

Dr. M. Ekenberg, of Gothenberg, Sweden, described a process of changing milk into a fine flour that afterwards, through solution in a sufficient quantity of water, may again be transformed into milk with all its alimentary qualities.

The peculiarity of Dr. Ekenberg's discovery lies in his having found the conditions under which the milk will retain its solubility in water in spite of the transformation into powder. Formerly, when milk was dried, the components became indissoluble.

The transformation of milk into powder requires a special apparatus, which is said to be so simple that it can be placed in any dairy, requiring no technical knowledge to operate.

Dr. Ekenberg would not give a description of the apparatus, as he has applied for letters patent. According to his calculations, the apparatus should not cost more than a common separator.

The milk flour resembles wheat flour, and has the aroma of milk. It can be kept in tin cans, wooden barrels, and even sacks and paper bags. One part of the flour, in weight, gives about ten parts of milk. It is simply concentrated milk, in the form of flour; it contains all the constituent parts of milk, except the water and gases. It does not turn sour or effervesce, and is not susceptible to changes in the weather. Samples have been kept for weeks in thermostat at blood temperature (37.5° C.), and no changes were noted. Even in damp air, without protection, it does not turn sour or become moldy.

* For rules and regulations, see ADVANCE SHEETS No. 841 (September 24, 1900)

† See ADVANCE SHEETS No. 1217; CONSULAR REPORTS No. 257.

From the milk flour, cream, butter, and cheese may be obtained. It can be used in baking bread, puddings, etc.

The working expenses for the production of milk flour have been calculated at 1 cent per gallon of milk.

Flour of skimmed milk was also exhibited by Dr. Ekenberg before the Academy of Agriculture, and it is particularly for this article that the new process will be of importance, as the product has hitherto been largely wasted.

The flour will be found to be superior to such preparations as "proteid" and "proton," as 10 to 20 per cent of the albumen of the milk is lost in the production of the latter, and the flour can be produced much more cheaply.

Skimmed milk is said to be the cheapest albuminous aliment known. The process for the production of milk flour is so simple that the article can be profitably sold at 1 krone per kilogram (12 cents per pound), and even less, provided skimmed milk can be obtained at 3 öre per liter (2.9 cents per gallon).

By means of this apparatus, every dairy will be enabled to send all its products to the market in a transportable condition.

According to rumor, Dr. Ekenberg has applied for letters patent on the method itself, the nature of which is a scientific discovery.

VICTOR E. NELSON,

BERGEN, *January 24, 1902.* *Consul.*

OILING APPARATUS FOR LOCOMOTIVES IN SWEDEN.

The following is a translation of an article which appeared in a Gothenburg newspaper of the 11th instant; it may possibly prove of interest to American railroad men:

A Swedish invention which ought to have a good future is the system of oiling piston rods, cylinders, slide rods, and slide guides on locomotives, which has been invented by T. F. Malmros, of Gothenburg, locomotive engineer on the state railroads. Formerly, cylinders and slide guides have, at best, received necessary lubrication from the central steam-lubricating apparatus, but piston rods and slide rods with packings have been lubricated by means of old-fashioned oil cups with wick feed, which method, for many reasons, has proved unsatisfactory—especially when metal packings are used. Mr. Malmros, by introducing the intermixed oil and steam, coming from the central steam-lubricating apparatus, through glander bushings expressly constructed for this purpose, has effected a good and economical lubrication of packings and rods, as well as of the cylinders and slide guides.

The system has for five years been tested on one of the express engines of the State railroads—used for the fastest train in Sweden, with a speed considerably

exceeding 60 kilometers (37 miles) per hour—and with such good result that all locomotives of the State railroads will be provided with the same. The State railroads have also applied the new lubricating system to a number of old locomotives.

I am informed that Mr. Malmros has recently made improvements in his system which make it worth mentioning even at this late date.

ROBERT S. S. BERGH,

GOTHENBURG, *February 12, 1902.* *Consul.*

RUSSIAN TRADE IN 1901.

Reports showing the extent of Russia's foreign trade for the first nine months in 1901 have just been made public. Her exports were valued at 528,249,000 rubles ($272,048,235) and her imports at 399,139,000 rubles ($205,556,585), or a total of 927,380,000 rubles ($477,604,700), showing an increase of 129,118,000 rubles ($66,495,770) as compared with the same period of the previous year. The exports were valued as follows:

Article.	Value.	
	Rubles.	
Food stuffs	309,234,000	$159,255,510
Raw and partially manufactured materials	188,787,000	97,225,305
Animals	13,438,000	6,920,570
Manufactured goods	16,790,000	8,646,850

The value of the imports was:

Article.	Value.	
	Rubles.	
Food stuffs	61,525,000	$31,685,375
Raw and partially manufactured materials	213,867,000	110,141,505
Live stock	1,140,000	587,100
Fabricated goods	122,599,000	63,138,485

The imports from Germany were valued at 155,878,000 rubles ($80,277,170); from England, at 81,158,000 rubles ($41,796,370); from France, at 19,377,000 rubles ($9,979,155). For Russia's exports, Germany is still the largest market, taking goods to the value of 135,968,000 rubles ($70,023,520), England coming second with 110,863,000 rubles ($57,094,445), and Holland with 59,634,000 rubles ($30,711,510).

Imports from the United States were valued at 25,828,000 rubles

($13,301,420), against 33,534,000 rubles ($17,270,010) for the same period of the previous year, and the value of Russia's exports to the United States was 2,813,000 rubles ($1,448,695), against 2,770,000 rubles ($1,426,550) for the same period of the previous year.

W. R. HOLLOWAY,
Consul-General.

ST. PETERSBURG, *January 17, 1902.*

MEAT, BUTTER, AND EGGS IN RUSSIA.

The recent visit to England of a committee of Russian agriculturalists and dealers in live stock, to promote the trade in fresh meats and produce, has increased the interest in these industries.

It is proposed to establish abattoirs at Baltic ports, with a line of refrigerator steamers which will reach the United Kingdom in fifty hours. These steamers will also carry butter and eggs.

During the past eleven months, Russia's export of meats (on the hoof, fresh, and salted) was, including Finland:

Description.	Quantity.		Value.	
	Poods.	*Pounds.*	*Rubles.*	
Fresh meat (except hog)	44,000	1,588,928	223,000	$114,845
Salted, smoke-dried meat (except hog)	9,000	325,008	50,000	25,750
Swine's flesh			1,285,000	661,775
Cattle (cows and oxen)	5,000	180,560	320,000	164,800
Boars (hogs and pigs)	58,000	2,094,496	2,534 000	1,305,010
Sheep and lambs	55,000	1,986,160	242,000	124,630

It is estimated that, at an average price of $5 per pood (36 pounds), an immense business can be built up in England. The export of Russian eggs has increased in value from 3,000,000 rubles ($1,545,000) in 1875 to 30,000,000 rubles ($15,450,000) in 1901, and the British branch of the trade is capable of much greater development. The line of refrigerator steamers would enable Russia to compete with Denmark's large export of butter to England. The Russian authorities are well aware of the necessity of improving the quality of these commodities, in order to give them a stronger position in British markets, and, to this end, are devising comprehensive schemes for the better breeding of cattle and for the production of first-class dairy and other rural articles of food.

W. R. HOLLOWAY,
Consul-General.

ST. PETERSBURG, *February 4, 1902.*

HUNGARIAN PROHIBITION OF AMERICAN FRUITS AND PLANTS.

A new order of the Royal Hungarian Ministry of Agriculture, prohibiting the import of American plants and fresh fruit, was published yesterday, under date of the 10th instant. I inclose translation. The Hungarian Government lately opened a chemical inspection station at Fiume, in addition to the five stations already in existence. These stations examine the seeds, plants, and fresh fruit brought for import into Hungary. The order of April 20, 1898, prohibited only plants, while the present order prohibits fruit as well.

FRANK DYER CHESTER,

BUDAPEST, *January 27, 1902.* *Consul.*

ORDINANCE OF THE ROYAL HUNGARIAN MINISTRY OF AGRICULTURE IN THE MATTER OF RESTRICTING THE IMPORT AND TRAFFIC IN AMERICAN PLANTS.

Ordinance of the Royal Hungarian Ministry of Agriculture, No. 6094, 1902, in the matter of restricting the import of and traffic in American plants.

I. To the several economic, botanic, and pomological societies.

II. To the several agricultural commissions (city and county).

Of late, the number of petitions addressed to me by individuals and societies for licenses to import plants, parts of plants, bulbs, etc., of American origin has much increased.

All these petitions allow me to suppose that the interested public is insufficiently informed of the prohibitory order issued under No. 25000, 1898, in the matter of regulating the traffic in plants of American origin.

For this reason, I call upon you to take measures within your jurisdiction to the end that growers and merchants, in order to avoid any damages, may be properly informed of the contents of the said ordinance.

Under the Government order referred to, which was issued in conjunction with the Imperial and Royal Austrian Government, the import from America of living plants, grafts, layers, and every sort of plant section in a fresh condition, as well as of barrels, boxes, or any other objects of whatever name serving to pack the above-named articles or plant sections, is forbidden.

Likewise, the import of every sort of fresh fruit, fresh-fruit sections, and fruit parings, as well as of objects used to pack the same which originate from America, is forbidden.

This prohibitory measure having been meant to prevent the introduction of injurious insects and of parasites which have appeared in America and the Far East, and are threatening fruit production with annihilation, and hence to preserve home interests of prime importance, I call upon you to endeavor within your jurisdiction to bring about the complete execution of this order.

I call upon you further to send me an immediate report, for the purpose of taking retaliatory measures, in or of all such cases which may come to your knowledge where it may be supposed that there is such elusion and evasion of the prohibition contained in the ordinance, whereby individuals transship by rail plants ordered from America in European states which do not resist American import.

Dated at Budapest, January 10, 1902.

HOW TO INCREASE COAL SALES IN AUSTRIA.

During the year 1901, there were imported at Trieste about 300,000 tons of coal, 20 per cent of which came from the United States. With the exception of one shipload, all the United States coal was imported by the Austrian Lloyd Steamship Company for its own use. I am informed that this company is so well pleased with the result of its experiment of substituting American for British coal that it has again contracted for 100,000 tons of our coal, to be delivered during 1902.

The praises of American coal sounded by the Lloyd's engineers induced a Trieste coal dealer to place with a New York firm an order for 3,000 tons of prime steam coal. When the coal arrived it was found to contain so large a percentage of screenings as to render it unsalable as standard steam coal, and the purchaser refused to accept it. The coal was finally disposed of at a considerable discount, but not until it had been offered to, and inspected by, nearly every other dealer in the city. The local representatives of the British coal interests unduly descanted on this incident, and it can not be denied that the reputation of our coal has suffered a serious backset.

That we have coal equal to the best British grades few dealers doubt; but I know that many of them would regard it as a very risky experiment to buy in the United States "sight unseen" a shipload of coal and pay cash for it. In fact, the large majority of our exporters of coal are not yet well enough known abroad to demand from foreign buyers more confidence than they are willing to extend to them. British coal is sent here on consignment. Nearly every British exporter doing business in Austria has a large depot at Trieste, in charge of a native agent, and it is probably safe to say that the most experienced coal men of this city are thus linked to British interests.

A standard grade of American steam coal was recently offered here for February or March delivery at a price 3s. (73 cents) below the present quotations of Welsh coal and found no taker, while in Italy and France the same coals have for the past year been sold side by side at practically equal prices. I have no doubt that, were an American coal depot established here, from 200,000 to 300,000 tons of first-class American steam coal could annually be sold in southern Austria.

Mr. A. Weiler, who has opened at Trieste a general agency for the importation of American goods, with branch offices at Vienna, Prague, and Budapest, makes the following statement in a letter

which he recently addressed to me upon the subject of coal shipments from the United States:

The greater part of our customers know as yet little of the merits of American coal, and they will not order large quantities of it while British coal can be bought here at any time in parcel lots. There is only one way of introducing United States coal into Austria, viz, by the establishment of coal depots at Trieste, where consumers may inspect the article and buy the quantities desired. Such depots have the further advantage that foreign steamers calling at our port can be supplied with this fuel.

When American coal is once well introduced and sufficiently known, there will be no difficulty in obtaining large orders. If your miners and shippers desire to conquer our market, they must offer their product for sale here and establish in our ports depots for that purpose, and if their coal can at all compete with the product of Great Britain, they will run no risk in doing so. I will add that we should be pleased to enter into correspondence with any good American coal firm disposed to profit by our suggestion and establish a coal depot at Trieste. I am well equipped for representing such a firm in this place, as well as in the various other cities in which I have branch offices, and I am able and ready to give any security or bank guaranty that may be desired.

There is also a demand here for good gas coal; and with wood selling at from $6 to $10 a ton and an inferior grade of gas coke at $11 a ton, it ought not to be difficult to create a demand for anthracite coal. But such is the conservatism of the Austrian dealer that he will not buy abroad a commodity which, for more than half a century, has been brought to his very door, even if he can effect a large saving by doing so. He does not like to reckon with unknown quantities in his business transactions, and he seems willing to pay whatever it may cost to have business made easy or safe for him. When our colliers, like their British rivals, will sell their product to the Austrian dealer in his own market, the ascendancy of our coal in Adriatic ports will be assured.

FREDK. W. HOSSFELD,
Consul.

TRIESTE, *February 11, 1902.*

MARKET FOR AMERICAN BILLIARD TABLES IN AUSTRIA.

An Austrian, who has just returned to Trieste after several years' residence in the United States, in a recent conversation with the writer, remarked that if the superior merits of the American billiard table became generally known in this country Austrian billiard players would refuse to play on any other. This gentleman also informed me that he had decided to import on his own account fifteen American tables and cause them to be set up in this city.

The above-mentioned conversation has led me to investigate the

relative merits of American tables and those in general use in Austria. I find that the better kinds of billiard tables are almost exclusively imported from France. There was a time when France led the world in this line, but the comparative monopoly which the French manufacturer has enjoyed for so many years has caused him to become ultraconservative, and the French product, having undergone scarcely any change during the past twenty-five years, is now far behind its American rival, which the genius of the inventor and the enterprise of the manufacturer have year after year brought to a higher state of perfection.

Briefly stated, the superiority of our billiard tables consists in their greater solidity, trueness, and the ease with which they may be transported.

On the French table, the cushion frame is not fastened to the slate. It therefore yields more or less when struck by a ball, which rebounds with an audible thud. On the other hand, the cushion frames of the American tables are firmly held to the sides of the slates by long screws. This causes the ball to rebound noiselessly—an advantage greatly appreciated, as my informant assures me, by nervous players.

The superior cloth and cushions of American tables account for their greater precision or trueness. The best billiard cloth is made in Belgium, but it is said that it is manufactured exclusively for an American firm, which thus controls its sale, with the result that on European tables standard cloth is rarely met with. It is claimed that good billiard cloth should be both thin and firm enough to prevent the cue, should it strike it, from leaving in it depressions likely to deflect the ball from its true course. In this respect, the cloth usually found on French tables leaves much to be desired.

The cushions, also, are imperfect and unreliable. They soon become uneven and lose their elasticity, causing balls to rebound at wrong angles and frustrating the calculations of the player.

Last, but not least, while the slate of the American table consists of three different pieces, that of the French is one solid piece, and this adds greatly to the risk and expense of transportation. In this connection, it may be stated that the American manufacturer, in obtaining his slate from native quarries, has a decided advantage over his French rival, who is compelled to import his supply from India.

The cost of a standard French table (about 3 feet 8 inches by 7 feet 4 inches), laid down at Trieste, is from 1,200 to 1,250 crowns ($243 to $253). It appears to me that at such prices Austria would be an inviting market for our manufacturers. It might require a little effort to introduce our billiard tables into this country, but, once established, they would be here to stay.

The duty on French tables amounts to from $12 to $25 apiece,

according to weight, finish, etc. As all Austrian duties are specific, the importation of heavy frames is not advisable. Moreover, the various parts of a table, such as the frame, cloth, rubber, etc., should be packed and entered separately, as quite a saving of duty is thus effected. Wooden furniture and parts of wooden furniture, plain or polished, pay only 5 florins gold per quintal; but if the wood is covered with cloth, or is combined or connected with any other material, it pays 30 florins gold ($12.80), and even more, per quintal (220.4 pounds). The duty on billiard cloth is comparatively low, being 50 florins gold ($20.30) per quintal if the cloth weighs over 500 grams (16⅔ ounces) per square meter (1.14 square yards), 80 florins gold ($32.48) if it weighs 500 grams (16⅔ ounces) or less per square meter, and 110 florins ($44.66) if it weighs 200 grams (6⅔ ounces) or less per square meter.

It is difficult to say how patent cushion rubber would be classed by the Austrian appraiser. The duty on such articles varies from 10 to 30 florins gold ($4.06 to $12.80) per quintal, according to their quality and composition. A trial shipment is usually necessary to have them definitely classified.

Frames intended for importation into Austria should be entirely plain, as carved, pressed, or inlaid work is subject to an almost prohibitive duty. Even the few small geometrical figures of ivory, pearl, or fine wood, usually inserted in the upper surface of the frame to aid players in their calculations, should be omitted. If they are really indispensable and American genius can not contrive a substitute for them, they should be inserted after importation.

FREDK. W. HOSSFELD,

TRIESTE, *January 29, 1902.* *Consul.*

IMPORT TRADE OF GREECE.

I wish to draw attention to errors in an article on the import trade of Greece that was published by the German press and, forwarded by a consul located in that country, appeared in the ADVANCE SHEETS OF CONSULAR REPORTS, No. 1174 (October 29, 1901).* It was so full of misstatements that this consulate has spent much time and labor in collecting data for a report on the subject which may correct the erroneous impressions that the article conveys.

In the first place, the reports of imports and exports published by the Greek Government are usually a year or more behind time, and are then so full of omissions that it is impossible for anyone to compile a full or correct statement of the imports from any one country or from all the countries trading with Greece.

*CONSULAR REPORTS No. 256.

Secondly, there being no direct line of transportation between Grecian and American ports, not more than one-fifth of the imports from the United States are credited to our country. Probably, one-fourth to one-third of what are termed imports from Germany are really American goods imported by German merchants and reshipped to Greece as German articles.

In trying to learn what products of the United States reach this consular district and the number or quantity of each, this consulate made a house-to-house canvass of the importing firms, with but partial success, as some of the firms refused to give the desired information, while others gave only part of it. But enough was learned to show that a great injustice was done to the trade of the United States with Greece in the German press article referred to. That writer gave a list of 74 of the commodities imported by Greece, and claimed that Germany led in the production of 37 and shared in the production of 14 more, while the United States led in but two, and shared in but four others.

The information I have obtained enables me to correct his statement, as follows:

Of the 68 articles named in his list and credited to European countries only, the following were also imported from the United States:

Iron beams.
Railway material.
Wine presses.
Gas motors.
Telegraph wire.
Optical apparatus.
Paraffin.
Bagging.
Glassware.
Lamps.
Lamp chimneys.
Photographic apparatus.
Sheet iron.
Printing presses.
Steam engines.
Power belts.
Chemical products.
Pharmaceutic products.
Cloth, cotton and woolen.
Trimmings.
Clocks.
Writing utensils.
Jewelry.

Here are 23 articles, which, with the six he gave us credit for, makes 29 in all, a figure not so very far behind that of Germany; besides, some of the imports claimed for Germany were doubtless products of the United States reshipped to Greece by German merchants. I have also learned that the United States leads, during the present year, in furnishing Greece with the following imports:

Petroleum.
Agricultural machinery.
Sewing machines.
Pumps.
Windmills.
Revolving-chair irons.
Codfish.
Cotton.
Railway coaches.
Ice-making machinery.
Typewriters.
Kodaks.
Kodak supplies.
Oatmeal

The article in question claims that Germany leads in furnishing Greece with shoddy, a fact I shall not dispute. It appears that for some years past Germany has been trying to imitate the products of other countries, especially those of the United States, and has been manufacturing such imitations of as cheap materials as possible, so as to be able to undersell us in foreign markets. The Greeks have become aware of this fact, and whenever they find an imported article of a shoddy nature they exclaim, "That must have been made in Germany!"

The American exporter should not rest under the impression that Germany or any other country can drive the United States out of the markets of Greece, or that our trade is not improving here; for, in spite of a lack of direct transportation, our products are finding their way to the remotest portions of the Kingdom. Let direct and regular lines of transportation be established between Grecian and United States ports; let American exporters combine to keep men here to conduct their business, and it will not be many years before the United States will take the lead in producing the imports of Greece.

The Greeks are learning how superior many of our products are to those manufactured in other countries, and if they can purchase them for the same price, or even at a little higher price, they will take American goods every time. Direct lines of communication will bring our products to these markets more safely and cheaply than they now come, and will also do away with the vexatious delays that seem to be almost unavoidable when shipments are made through other countries; and if our exporters will send good men here to conduct their business or watch their interests, as the British and Germans do, they will avoid the losses they now sustain through dishonest consignees.

Following is a list of a number of the imports of Greece from the United States during the last year; if the truth could be known, the list might be doubled. The known imports are:

Machinery.

Steam engines and boilers, vertical and horizontal.
Spinning machines.
Washing machines.
Sewing machines.
Ironing machines.
Sausage machines.
Boring machines.
Paper-cutting machinery.
Typewriters.
Harvesters.
Seeders.
Cream separators.
Churns.
Printing presses.
Gas motors.
Ice-making machinery.
Cotton gins.
Turbines.
Flour mills.
Feed mills.
Windmills.
Turning lathes.
Steam pumps.

Hand pumps.
Thrashing machines.
Mowers.
Fanning mills.
Plows.
Agricultural tools.
Wine presses.
Straw cutters.

Hardware.

Building iron.
Tubing.
Coal-stoves.
Oil stoves.
Kitchen utensils.
Saws.
Door locks.
Candlesticks.
Gas and other piping.
Sheet iron.
Revolving-chair irons.
Hardware for harness and saddles.
Wire, telegraph, etc.
Knives.
Razors.
Various other small articles.

Food stuffs.

Corn.
Rice.
Cured fish.
Butter.
Coffee.
Nuts.
Rice meal.
Corn meal.
Oatmeal.
Chestnut meal.
Pepper.
Cinnamon and other spices.

Miscellaneous.

Coal.
Petroleum.
Cotton,
Cotton cloth.
Woolen cloth.
Belting.
Carriages.
Handcarts.
Bicycles.
Bicycle sundries.
Kodaks.
Kodak sundries.
Furniture.
Furniture ornaments.
Drugs.
Medicinal plasters.
Patent medicines.
Toilet articles.
Lithographs and engravings.
Optical apparatus.
Lumber.
Veneering woods.
Green hides.
Leather.
Sacks and sacking.
Bags and bagging.
Firearms.
Watches.
Jewelry.
Writing utensils.
Kerosene lamps.
Acetylene lamps.
Paints.
Linoleum and oil cloths.
Stepladders.
Fly paper.
Paraffin.
Blue vitrol.
Books.
Glassware.

DANIEL E. MCGINLEY,
Consul.

ATHENS, *February 21, 1902.*

No 260—02——9

HARBOR WORKS AT SYRA: AMERICAN COAL IN GREECE.

The recent action of the harbor committee of the Island of Syra, which looks to the extension of the harbor facilities of the capital city and chief port, Syra, and to the erection there of new coal warehouses, is of considerable importance to the Mediterranean trade. The Island of Syra, the commercial center of the Cyclades, is one of the principal coaling ports of the Mediterranean, the majority of all vessels trading in the East finding it a convenient port of call. The facilities, however, have not been exceptional, and the harbor committee has recommended the construction of another arm in the harbor and the erection thereon of additional warehouses, from which as many as six vessels may load or discharge coal cargoes simultaneously. The contemplated improvements will cost 1,000,000 drachmas ($125,000) or over.

The above facts ought to interest American coal dealers. Some outside country will keep these warehouses full, as Greece has no coal with which to meet her own needs, much less those of others.

Two things—one or both of which are generally overlooked—are necessary for the opening attempt to gain the trade: First, the quotation of a price which will include and not omit the expense of transportation to Greek ports and will compete with Cardiff and similar grades, quoted in the current markets at 46 drachmas ($5.50 to $5.75*) per ton; second, the furnishing of convincing statements to prospective purchasers of the high steaming quality of American coal. From an unofficial but reliable source comes the rumor that a cargo of American coal was at one time entered at a Greek port, the quality of which proved anything but satisfactory. Our coal has not yet succeeded in gaining the trade in this market. When, however, these two conditions are met, it is not improbable that a successful opening can be made.

F. W. JACKSON,
Consul.

PATRAS, *January 18, 1902.*

DREDGER WANTED FOR PATRAS, GREECE.

Another trade opportunity is afforded American manufacturers, through the decision of the municipal council of Patras to purchase a dredger for the harbor of the city, and to give the matter general publicity in the hope of securing the most improved machinery on the world's market. It is probable that England, France, and

*According to exchange.

Belgium will constitute the principal, possibly the only, European contestants.

The conditions to be considered in making bids are, briefly stated, as follows:

(1) The construction of the machine must be such as to remove the materials which naturally collect in a harbor (rubbish, mud, sand, etc), and to be capable of dredging to a maximum depth of 7 meters (22.97 feet).

(2) Consideration will not be given to the propositions of firms which do not furnish every detail concerning the capacity, etc., of the dredger, together with specifications and photographs.

(3) Secondhand machines will not be barred, provided they are in good condition and are completely equipped.

(4) Prices quoted are to be c. i. f. Patras and must cover all accessories, in the latter two mud scows being included.

It may be added that the municipality is not disposed to spend above $20,000 for the entire outfit, and firms desiring to enter the contest will do well to keep as much under this limit as possible, and to act immediately. No date has yet been fixed for letting the contracts, and probably will not be until a comparatively short time beforehand, as in the case of the Currant Bank with its contract for sulphate of copper,* so that bids should reach the municipality not later than March 15 next, and earlier if practicable. All communications and data placed in the care of this consulate will be put into the hands of the municipal committee.

F. W. JACKSON,

PATRAS, *January 22, 1902.* *Consul.*

YEAST WANTED AT MALTA.

The population of Malta (183,679) may be divided into two classes—permanent and temporary. The first includes natives; the latter, the soldiers and sailors of the British army and navy and families of officers. The former, in many cases, are too poor to afford meat, and are therefore obliged to rely upon bread almost wholly. To supply the demand there are, in addition to the Government bakery, many bakeries run by natives. Two years ago, large quantities of wheat came here from the United States by the direct line of steamers, but for the past year, except when they came to fill army or navy contracts, there has been a falling off in consignments; however, this has been more than compensated for

*See ADVANCE SHEETS Nos. 1214, 1236, 1244, and 1264; CONSULAR REPORTS No. 257.

by the increased demand for American flour. So much of this has arrived that our only near competitors to-day are Liverpool and Trieste.

In making bread, with one exception, no yeast is used here, sour dough taking its place. Bread made from flour coming from Liverpool and Trieste has been whiter than that made from American flour, the sour dough being used in each case. If we could only get white bread from American flour, the sale of the latter would be likely to increase. After much study, I have decided that the difficulty lay in the lack of yeast. Recently, I procured a pound of compressed yeast from one of our Government vessels and gave it to one of the largest dealers in American flour here, with full instructions as to the manner of using it. He writes me:

> Allow me to send you a few loaves of bread, the product of American flour from the West and American yeast. I am happy to say the quality of the bread has greatly improved through the use of the yeast. My clients are now persuaded that American flour can turn out just as white and as light bread as the Liverpool flour.

An examination of the bread sent and comparison with bread of American flour made without the yeast and with that made from other flour showed marked improvement over the last two products. The bakers who tested the yeast tell me that from 5 pounds of American flour and yeast they got 7½ pounds of bread; that it was very light—something unusual in bread making here up to this time—and very white. Those using the yeast are very enthusiastic and say that if they can get more of it they will use only American flour, because this is pure. The direct line of steamers sailing twice each month from New York to Malta takes about twenty days en route, and therefore yeast is required that will arrive here in good condition. I would suggest that those interested send me samples, together with export price quotations f. o. b. New York. I will promptly hand the former to parties interested, and tests will be made and correspondence opened upon the subject of further supplies. This is a matter that ought to receive attention on the part of American yeast manufacturers, inasmuch, as stated, yeast has practically never been in use here, and the field for it is large and permanent. I may add, in closing, that the bakers who tested the American yeast deemed the bread produced so superior that 2 cents more per loaf was charged; and several consumers requested that in future only that bread be furnished.

JOHN H. GROUT,

VALLETTA, MALTA, *February 17, 1902.* *Consul.*

THE HAT INDUSTRY OF MONZA, ITALY.

The provincial town of Monza is situated about 10 miles from Milan, on the direct route to Switzerland and the north. It is the first stopping place for the fast service of the St. Gothard Railroad, and is connected with Milan by three steam and two electric tram lines. Its population, including suburbs, is about 70,000. Monza was the ancient capital of Lombardy, but is now chiefly remarkable for its manufacture of hats and caps.

Statistics show that, in the year 1818, the town possessed 37 hat factories, which gave employment to 286 workmen. In 1850, the number of factories had only increased to 40 and the hands engaged to about 300. In recent years, however, the most important firms have introduced machinery into their establishments, which has not only resulted in greater precision and finer finish, but has notably increased the output. The cost of production has also been considerably diminished, due in a great measure to the utilization of waste wool. This waste wool is imported from France—from such centers as Tourcoing, Roubaix, and Fourmiens—and finds a good market in Italy.

Monza produces very few silk hats, these being made in small quantities by hand at Milan and Alessandria. The goods are manufactured almost exclusively of fur or wool. Information is not at hand as to the precise number of hats and caps turned out annually, but the half dozen better equipped establishments are probably capable of producing from 60,000 to 70,000 a day. These concerns use the most improved machinery and employ about 4,000 hands.

Monza is not only successfully competing in the hat industry with the rest of Italy, but has become a formidable rival to similar manufacturing centers throughout Europe. Her products are exported to Central and South America and to some European markets, principally Roumania and the Balkans, where woolen hats are in demand.

The capital invested in the industry is owned entirely by local stockholders, and the dividends declared are considered very satisfactory.

Heretofore, efforts made to increase the export trade have only been moderately successful, the lack of adequate machinery and the necessity of purchasing raw material from England and France having proved serious obstacles in the competition for foreign markets. The machinery working in the four largest factories now has a collective force of 2,500 steam and electric horsepower, but cheaper raw material is yet to be secured.

The following table shows the imports of wool and waste wool into Italy for the last three years. No separate classification is given to the United States, which is included in "other countries:"

Country.	1899.	1900.	1901.
	Tons.	*Tons.*	*Tons.*
Austria	370.3	289.3	330.6
Belgium	718.1	228.2	516.3
France	1,914	2,335.9	3,086.9
Germany	1,178.6	729.4	882.3
Great Britain	892.9	940.8	482.2
Switzerland	320.8	214.4	315.8
Turkey	109.8	67.9	62.9
Tunis	35.7	131.6	105.1
America (Central and South)	651.7	1,016.2	459.6
Other countries	612.2	502	549.5
Total	6,804.1	6,455.7	6,791.2

In Italy, the hat industry in general is in a prosperous state, imports being limited to the higher-priced articles, which are supplied by the following countries:

Country.	1899.	1900.	1901.
	Number.	*Number.*	*Number.*
Austria	3,400	2,200	3,700
France	5,700	7,100	6,200
Germany	2,300	1,700	1,700
Great Britain	14,300	10,700	11,100
Other countries	1,000	1,700	2,600
Total	26,700	23,400	25,300

From the following statistics of exports for the same period, it will be seen that the export trade is in a flourishing condition:

Country.	1899.	1900.	1901.
	Number.	*Number.*	*Number.*
Austria	660,300	231,900	419,500
France	.....	.....	126,430
Germany	.....	.....	50,800
Switzerland	66,900	86,700	36,800
North America	101,100	159,100	78,000
South America	377,300	550,600	581,000
Other countries	442,100	645,800	458,300
Total	1,647,700	1,674,100	1,750,800

The above figures are only for the first six months of each year. Straw hats are classified separately.

WM. JARVIS,

MILAN, *February 6, 1902.* *Consul.*

CARRARA MARBLE EXPORTERS' ASSOCIATION.

There has recently been organized at Carrara an association of marble exporters, known as the "Unione fràgli Esportatori di Marmo." The objects of this association, as set forth in a circular issued by the president, Bernardo Fabbricotti, are:

(1) To unite in one association the individual energies of the members for the purpose of regulating and developing the marble trade and for the protection of exporters and purchasers of marble.

(2) To formulate and adopt from time to time a tariff fixing minimum prices under which no member of the association will be allowed to sell.

(3) To fix rules and conditions of sale.

This association is composed of about forty different firms and individuals formerly acting independently, and comprises the leading producers and exporters of marble at Carrara. Its formation is the natural result of a long period of active and severe competition between the various concerns who are its members. It will be, I believe, of material benefit alike to the exporters and to the importers of Carrara marble throughout the world.

The trade between Carrara and the United States has during the past year (1901) shown a decided increase. From an average annual exportation of about $575,000 during the ten previous years, it has suddenly jumped to $761,812.50 for 1901. This advance of about 30 per cent has brought the exportations to the highest point of which I have any record, and from present indications there will be no falling off in the amount during this year.

The organization of such an association as the one mentioned and the consequent control by it of this large volume of business must necessarily be of importance to our producers and manufacturers of marble, with whose product the output of Carrara enters into direct competition; and if its objects as to the regulation of prices, rules, and conditions of sale, etc., can be realized, the result will doubtless be advantageous to them, in so far at least as it tends to prevent in future unsettled conditions and at times ruinously low prices.

JAS. A. SMITH,
Consul.

LEGHORN, *February 14, 1902.*

CHEMICALS IN SPAIN.

The important trade in "rough" chemicals for industrial purposes, for her supply of which Spain was entirely dependent upon foreign countries, induced some resident German engineers to plan the construction of works for the manufacture of two of the chief articles—*i. e.*, chloride of lime and caustic soda.

The electrolytic system of production was selected, and the company, under the name of Sociedad Electro-Quimica de Flix, commenced building operations in 1896 at the town of Flix, about 100 miles from Barcelona, on the railroad to Madrid, securing easy facilities of transport, cheap labor, a sufficient water supply, and access to plentiful limestone and salt deposits. The company started with a capital of 4,000,000 pesetas (about $600,000), and the estimated output of the works was 5,000 tons of chloride of lime and 2,000 to 2,500 tons of caustic soda. At the end of 1899, the company began to place its manufactures on the market, causing some uneasiness to the foreign makers of these articles, as prices at that time had a decided upward tendency, and it was feared that considerable sacrifices would be necessary to meet the new competition.

So far as can be ascertained, however, the Flix works have not fulfilled expectations. Foreign manufacturers have not suffered to any appreciable extent, and the imports of bleaching powder and caustic soda during the last two years show little, if any, falling off.

Spain draws her supply of caustic soda mainly from Great Britain; a large quantity is also imported from Belgium and France. Barcelona, the leading port in Spain, takes the first place, with from 50 to 60 per cent of a total consumption of from 25,000 to 30,000 tons per annum, being followed by Seville.

During 1901, industrial chemicals ruled high, and, averaging the price of caustic soda at £10 ($48.66) per ton, Spain's foreign purchases of this article amounted to from $1,250,000 to $1,500,000. Caustic soda is principally used in Spain for making soap, the well-known firm of Rocamora Hermanos, of this city, using upward of 1,000 tons per annum.

Chloride of lime, an essential article in a large bleaching and finishing center like Barcelona and surrounding district, is supplied by the Flix works, France (Marseilles), Belgium, and the United Kingdom, but no reliable data respecting the consumption are obtainable.

Another chemical used extensively in Spain—particularly in this consular district—the supply of which is purchased abroad, is ammonia alkali or ammonia ash. Of this trade, Belgium obtains the lion's share, although Germany is attempting to gain a footing. Ammonia alkali is used in the manufacture of glass, soda crystals, etc., and is in demand for other industrial purposes. The total imports are about 8,000 tons a year and the average value $200,000 to $250,000.

In the event of a poor olive-oil crop, Spain again has to turn to foreign countries for a supply of silicate of soda, which is utilized as a substitute for oil in the manufacture of soap. Until lately, this article was almost exclusively imported in the form of a solu-

tion, but a dissolving plant has been erected, and it is now imported in lump (or glass), either alkaline or neutral. The average imports of lump silicate of soda are about 1,000 tons per annum, and the trade is limited to Great Britain, Germany, and Belgium.

The above are the principal rough chemicals imported into this country. As of lesser importance may be mentioned bicarbonate of soda, chlorates of soda and potash, acetic acid, muriates of ammonia, and sulphate of copper. The last named is purchased abroad in steadily diminishing quantities since the Rio Tinto Company began its manufacture.

Of late years, Germany has made great progress in supplying the more elaborate chemicals; but in what are understood as industrial articles, the United Kingdom and Belgium show no signs of losing first place.

In addition to the Flix chemical works, another establishment, situated at Badalona, the property of a wealthy firm in this city, is worthy of mention. The works in question cover an area of 70,000 square yards and are fitted with the most modern appliances for manufacturing sulphuric, acetic, and methelytic acid, pyrolignite, sulphates of iron, superphosphates, and other products. The output, however, falls far short of meeting the requirements of the country.

With ample raw materials and sufficient water power (in the absence of coal) for motive power, there is little doubt that fresh enterprise in this direction would prove remunerative, and numerous inquiries from other countries show the interest taken in developing this branch of trade.

JULIUS G. LAY,
Consul-General.

BARCELONA, *February 7, 1902.*

SAUSAGES IN SPAIN.

Among the oldest and most prominent industries in this district of Spain is the manufacture of sausages. Although the preparation of hams and sausages is also carried on to some extent in the provinces of Asturias, Huelva, and Extremadura, I will confine myself to a few remarks on this trade in the province of Catalonia.

The chief center of the industry is the old town of Vich, situated on an elevated plain on the southern slopes of the Pyrenees. The climate and character of the surrounding territory are particularly well adapted to the rearing of pigs, while the large steam-power factories to be found there are a proof of the thriving nature of the trade. According to statistics, the number of pigs slaughtered in Catalonia during 1900 was 114,629.

In preparing the meat for the sausages, it is first minced, usually by machinery, though in the farmhouses it is still done by hand, the peasants claiming that when cut in this way the meat retains more of its moisture and flavor. After the pork is minced and the desired quantity of bacon has been added, the necessary proportion of pepper and salt is thrown in—generally 4 per cent of salt. The whole is then well mixed and pressed into a compact mass, which is incased in intestines which have been previously washed clean, all fatty matter having been removed and a small quantity of salt introduced. This operation requires some care in order to insure a vacuum in the cases.

The genuine Vich sausages, which are famed throughout Spanish-speaking countries, are prepared exclusively from lean pork and a small quantity of bacon, without admixture of any other kind of meat. As the sausages are made, they are placed on tables and wrapped in clean cloths, in order to extract any excess of moisture. After a few hours, they are hung in the drying room, care being taken that each sausage hangs separately, to get the benefit of the circulation of air. Every precaution is taken to keep out the hot, damp southeast wind known as the sirocco, the effects of which are most prejudicial to the drying process.

The sausages made in the vicinity of Vich are supposed to acquire a special flavor which distinguishes them from those made in other parts. This peculiarity is not due to any special preparation, but is apparently gained during the process of drying, as sausages prepared in other districts and brought to the plain of Vich to be dried acquire the same distinguishing aroma.

The estimated annual output of the Vich factories is valued at nearly $1,000,000.

JULIUS G. LAY,
Consul-General.

BARCELONA, *January 21, 1902.*

OLIVE CROP OF ANDALUSIA.

The olive crop of Andalusia is unusually good, and the output of oil in consequence will reach large figures. But for heavy frosts last month, the oil produced in the provinces of Malaga, Cordoba, and Jaen would have reached from 4,500,000 to 5,000,000 arrobas (112,500,000 to 125,000,000 pounds), and, even as it is, it is thought the crop will amount to about 3,500,000 arrobas (87,500,000 pounds), or some 37 per cent more than in 1899, 1900, or 1901.

It should be understood that the crop now being pressed was grown in 1901, but it is known none the less as the crop of 1902, since it is marketed this year.

The opening prices for Andalusian oil this season were from 8 to 9 pesetas ($1.12 to $1.22) per arroba of 11½ kilograms (25.3 pounds); but, owing to the very short crop in Italy, these prices have slightly increased, being to-day from 10 to 10½ pesetas ($1.40 to $1.48) per arroba. These prices are 30 per cent under those of last year, when there was a very small crop.

Italian oil exporters, in order to supply their customers in the United States and elsewhere, have found it necessary to come to this market for oil, and some of them are even exporting direct from here to New York.

Malaga is sending her olive oil this year principally to Italy, Russia, France, Germany, England, Holland, Norway and Sweden, and the United States.

The cheapest grade goes largely to Russia, where the demand for it is created by the religion of the country, which requires that olive oil shall be burned in the lamps used for illuminating the images of saints in nearly every Russian house.

It is said here that the failure of the crop in Italy is due to the ravages of the "mosca" (*Dacus olea*). The same pest appeared in this province in 1894 and 1895.

The oil now being pressed is of an excellent quality, both in color and taste, and much superior to the product of the three previous years.

BENJ. H. RIDGELY,

MALAGA, *January 31, 1902.* *Consul.*

COALING FACILITIES AT BARCELONA.

The lack of special coaling facilities at Barcelona has long been felt. Other important Mediterranean ports, such as Marseilles, Genoa, Naples, Malta, Algiers, and Gibraltar, have taken steps to supply bunker coals on favorable terms to vessels coaling there, and the fact that Barcelona lacked these facilities was a distinct drawback to local trade, and frequently obliged steamers to visit other ports to replenish their bunkers.

The Barcelona Floating Coal Depot Company, Limited, has been formed to supply this want. Mr. Kendall Park, a British subject, after obtaining the requisite concession from the Spanish Government to furnish bunker coals to vessels at this port free of duty, formed a company with a capital of 350,000 pesetas (about $50,000), of which he is the manager. A hulk of 2,800 tons dead weight has been purchased and fitted out with modern machinery. It is anchored in the outer harbor, thus enabling steamers to come alongside

quickly. The mechanical appliances with which the hulk is being provided will allow steamers to coal at the rate of 70 to 80 tons per hour. The freedom from duty and the saving in labor, owing to the use of machinery, will, it is claimed, enable this floating coal depot to compete successfully with other Mediterranean ports, and vessels coming here from the United States can avoid the expense and loss of time entailed in making a special call at Gibraltar. In the prospectus of the company, it is pointed out that any slight advantage that Gibraltar may have in price, owing to lower freights on coal, is counterbalanced by time consumed. It is estimated that by calling at Gibraltar a vessel of, say, 2,000 to 3,000 tons would incur the following charges:

Description.	Charges.	
Bill of health, agency, boat, etc	£5	$24.33
Loss of at least 12 hours	15	72.99
Total	20	97.32

There would thus be an increase of 4s. (97 cents) per ton on the price of the coal, in the event of the steamer requiring only 100 tons as often occurs.

In proof of the advantage expected to accrue from the new enterprise, the following figures are given, showing the difference between the cost of coal as now supplied tc vessels from the shore and the cost delivered from the hulk:

Description.	Cost.	
Expenses per ton on coal from the hulk.	*Pesetas.*	*Cents.*
Discharge of steamer and stowage on board hulk	1.25	17.5
Discharge from hulk and stowage into bunkers	1.25	17.5
	2.50	35
Received from steamer	1.00	14
Total	1.50	21
Expenses per ton on coal from the shore.		
Discharge of steamer, lighterage, casts, etc	2.00	28
Casts, lighterage, and stowage into bunkers	3.00	42
	5.00	70
Import duty (from treaty nations)	2.50	35
	7.50	105
Received from steamer	1.00	14
Total	6.50	91
Result.		
Expenses without hulk	6.50	91
Expenses with hulk	1.50	21
Difference	5.00	70

The establishment of this floating coal depot, which will be in full working order before the end of March, will, I think, prove of material advantage to our shipping, when the anticipated development of United States trade with the Mediterranean will necessitate the running of direct lines of steamers to the southern ports of Europe.

JULIUS G. LAY,
Consul-General.

BARCELONA, *February 17, 1902.*

CANE-SUGAR CROP IN SPAIN.

The unusual frosts of December and January have wrought so much damage to the sugar cane of this province that not more than a half crop of sugar can be expected this year.

Sugar cane is grown all along the coast of Malaga, and the annual yield of sugar is about 30,000 tons. There are 17 sugar factories in the provinces of Malaga and Granada, employing many thousand hands. Grinding generally begins about the middle of March. This year, it may commence earlier.

The loss of the sugar-cane crop has resulted in the refusal of the manufacturers to take any part in the proposed organization of Spanish sugar makers, with the view of limiting production. There has been an overproduction of sugar—particularly of beet sugar—in Spain for several years, and strenuous efforts were recently made to form a syndicate of all the sugar manufacturers in Spain for mutual benefits along certain lines. This is understood to have failed because one of the most important beet-sugar factories refused to participate, and for the further reason that the cane-sugar manufacturers, in view of the largely decreased crop, saw no advantage in any further plan to limit production.

BENJ. H. RIDGELY,
Consul.

MALAGA, *February 21, 1902.*

SPANISH SUGAR SYNDICATE.

The French trade journals report the following as the points formally accepted by the assembly of sugar manufacturers recently held in Madrid:

(1) Limitation of the production in proportion to domestic needs, estimated at 80,000 tons.

(2) Division of this quantity among the refineries in proportion to their respective capacity.

(3) This capacity will be defined by a technical commission named by the bureau of the assembly. The manufacturer has the right to appeal from the decision of the commission to the bureau.

(4) Each manufacturer, within the limits of his output as fixed by the commission, may choose the types to be manufactured and sell the product where he pleases.

(5) The refineries not in condition to produce the quantities of sugar permitted to them, or whose owners will not wish to produce this amount, may cede their right of production to another establishment.

(6) The provisional bureau of the assembly will continue its functions until the definitive adoption of the present stipulations. Thereafter, the choice of a definitive bureau will be proceeded with, in which each region will be represented.

(7) This convention is concluded for three years.

(8) Each producer is held to declare, before the beginning of each approaching season, the amount of his reserve of sugar, this declaration being controlled by the bureau. These reserves will be registered, and the maximum sale for the year following will be augmented proportionately.

(9) Every manufacturer who shall exceed the proportion of manufacture allowed to him will be required to pay to the bureau a fine of 5 pesetas* per kilogram of sugar produced above the proper quantity.

ROBERT P. SKINNER,
Consul-General.

MARSEILLES, *February 7, 1902.*

BRUSSELS SUGAR CONVENTION.

Minister Townsend transmits from Brussels, March 6, 1902, the following translation of the sugar convention signed March 5:

I.—CONVENTION CONCERNING THE SUGAR RÉGIME.

His Majesty the Emperor of Germany, King of Prussia, in the name of the German Empire; His Majesty the Emperor of Austria, King of Bohemia, etc., and Apostolic King of Hungary; His Majesty the King of the Belgians; His Majesty the King of Spain and, in his name, Her Majesty the Queen Regent of the Kingdom; the President of the French Republic; His Majesty the King of the United Kingdom of Great Britain and Ireland and the British Possession beyond the Seas, Emperor of India; His Majesty the King of Italy; Her Majesty the Queen of the Netherlands; His Majesty the King of Sweden and Norway—

Desiring, on one hand, to equalize the conditions of competition between beet and cane sugars from different sources and, on the other hand, to promote the development of the consumption of sugar;

Considering that this double result can only be attained by the suppression of bounties as well as by limiting the surtax;

Have resolved to conclude a convention to this end, and have nominated their plenipotentiaries as follows, to wit:

His Majesty the Emperor of Germany, King of Prussia, in the name of the German Empire:

Count de Wilwitz, his Envoy Extraordinary and Minister Plenipotentiary to His Majesty the King of the Belgians; etc.

Article 1.

The high contracting parties bind themselves, from the date the present convention comes into force, to suppress the direct and indirect bounties by which the production or export of sugar may benefit, and they agree not to establish bounties of this kind during the whole duration of the said convention. In view of the execution of this provision, sweetmeats, chocolates, biscuits, condensed milk, and all

* In preceding reports the peseta is estimated at 12½ and 14 cents.

other analogous products, which contain in a notable proportion sugar artificially incorporated, are to be classed as sugar.

The above paragraph applies to all advantages resulting directly or indirectly, for the different categories of producers, from the fiscal legislation of the States, notably:

(*a*) The direct bounties granted to exports.

(*b*) The direct bounties granted to production.

(*c*) The total or partial exemptions from taxation granted for a part of the manufactured output.

(*d*) The profits derived from surplusages of output.

(*e*) The profits derived from the exaggeration of the drawback.

(*f*) The advantages derived from any surtax in excess of the rate fixed by article 3.

Article 2.

The high contracting parties bind themselves to submit to bond régime the sugar factories and refineries, as well as those factories in which sugar is extracted from the molasses, in order that they shall be under the permanent surveillance, day and night, of the customs employees.

With this object, factories will be arranged in such a way as to prevent the taking away of sugar clandestinely, and the customs employees will have the right to enter every department of the factories.

Books of control in regard to any or several phases of production will be kept, and the manufactured sugars will be deposited in such special buildings as will afford every desirable guaranty of security.

Article 3.

The high contracting parties bind themselves to limit the surtax to a maximum of 6 francs per 100 kilograms ($1.15 per 220 pounds) for the refined sugar and the sugars assimilable thereto, and 5.50 francs ($1.06) for other sugars—that is to say, the difference between the rate of duty or taxation to which foreign sugars are subjected and that imposed on the home product.

This provision is not to be applied to the rates of import duties in the case of countries that do not produce sugar; nor to the by-products of the manufacturing or refining of sugar.

Article 4.

The high contracting parties bind themselves to impose a special duty on imports into their respective territories of sugars from countries that grant bounties for production or exports.

This duty shall not be less than the amount of the bounties, direct or indirect, granted in the country of origin. The high parties reserve to themselves the privilege, each as it may affect its own interests, to prohibit the importation of bounty-fed sugars.

For the estimation of the sum of advantages derived eventually from the surtax specified under section *f* of article 1, the rate fixed by article 3 is deducted from the amount of this surtax; half of the difference is held to represent the bounty, the permanent commission organized under article 7 being entitled, at the request of one of the contracting States, to alter the rate so provided for.

Article 5.

The high contracting parties bind themselves reciprocally to admit at the lowest of their respective import rates sugars imported from any of the contracting States or from any colonies or possessions of said States that do not grant bounties and to which the obligations imposed in article 8 apply.

Cane and beet sugars can not be subjected to different rates of duty.

Article 6.

Spain, Italy, and Sweden are not held to the obligation imposed in articles 1, 2, and 3 so long as they do not export sugar.

These States bind themselves to adapt their sugar legislation to the provisions of the convention—within one year, or earlier if possible—from the time that the permanent commission has verified that the above condition has ceased to exist.

Article 7.

The high contracting parties agree to create a permanent commission, having charge of the surveillance of the execution of the provisions of the present convention.

This commission shall be composed of delegates of the different contracting States, and to it will be attached a permanent bureau. The commission elects its president; it will sit at Brussels, and shall meet on the call of the president.

The duties of the delegates will be:

(*a*) To verify whether, in the contracting States, any direct or indirect bounty for the production or export of sugars is granted.

(*b*) To verify whether the States named in article 6 continue to conform themselves to the provisions of this article.

(*c*) To verify the existence of bounties in the nonsignatory states, and to estimate the amount of such bounties with a view to applying the provisions of article 4.

(*d*) To issue an advice on litigious questions.

(*e*) To examine the requests for admission to the union from states which have not participated in the present convention.

To the permanent bureau is intrusted the compilation, translation, coordination, and publication of information of all kinds relating to the legislation and statistics of sugars, not only in the contracting States, but also in other states.

To secure the execution of the above provisions, the high contracting parties shall communicate, through the diplomatic channel, to the Belgian Government, which will transmit them to the commission, copies of the laws, decrees, and regulations relating to the taxation on sugars that are or may be in operation in their respective countries, as well as statistical information relating to the object of the present convention.

Each of the high parties is entitled to be represented on the commission by a delegate or by a delegate and associate delegates.

Austria and Hungary shall be considered separately as contracting parties.

The first meeting of the commission shall take place at Brussels, on the call of the Belgian Government, at least three months before the present convention comes into force.

The duties of the commission shall be confined to verification and examination. It will make a report to the Belgian Government on all questions submitted to it. Said report will be communicated to the interested states by the Belgian Government, and the latter shall, if requested so to do by any of the high contracting parties, promote a meeting of a conference which shall decide on the resolutions or the measures necessary under the circumstances.

The verifications and estimations, however, under sections *b* and *c*, shall have a binding character for the contracting States; they shall be established by a vote of the majority, each contracting State disposing of one vote, and they shall come into effect, at the farthest, at the expiration of a period of two months.

In case one of the contracting States were to appeal from the decision of the commission, it shall have to promote, within eight days after the notification of the said decision, a new deliberation of the commission; the latter shall meet under urgent call and shall decide definitely within a period of one month from the date of the appeal.

The new decision shall be executory, at the latest two months after its date. The same proceedings to be followed in regard to the examination of requests for admission under the provisions of section *e*.

The expenses arising from the organization of the permanent commission—except the salary and the compensations of the delegates, which are to be paid by their respective countries—shall be borne by all the contracting States and shall be assessed among them according to a method to be decided upon by the commission.

Article 8.

The high contracting parties bind themselves on their behalf and on behalf of their colonies and possessions, exception being made in the case of the autonomous colonies of Great Britain and British East Indies, to resort to the measures necessary to prevent bounty-fed sugar which has passed through the territory of a contracting State from having the same advantages as those accruing under the convention on the market they are destined for. The permanent commission shall present in this connection the necessary propositions.

Article 9.

The States that have not taken part in the present convention shall be admitted to adhere thereto upon request and after a favorable report of the permanent commission.

The request shall be addressed through the diplomatic channels to the Belgian Government, which will take charge eventually of notifying the adhesion to all the other Governments. The adhesion shall involve, in full right, the accession to all charges and the admission to all advantages enumerated in the present convention, and it shall enter into force from the 1st of September following the transmission of the notification by the Belgian Government to the other contracting States.

Article 10.

The present convention shall come into force from September 1, 1903.

It shall remain in force during five years from this date, and if none of the high contracting parties shall have notified the Belgian Government twelve months after the expiration of the said period of five years of its intention to have its effects ceased it shall continue for one year, and so on from year to year.

In case one of the contracting States were to denounce the convention, this denunciation shall take effect only as it may affect its own interests; the other States would retain, until the 31st of October of the year of the denunciation, the privilege of notifying their intention to also retire on September 1 of the following year. If one of the latter intended to make use of this privilege, the Belgian Government is to promote a meeting at Brussels, within three months, of a conference which would have to determine the measures to be resorted to.

Article 11.

The provisions of the present convention shall apply to the provinces beyond the seas, colonies, and foreign possessions of the high contracting parties. The colonies and possessions of Great Britain and the Netherlands, however, are not to be included in this regulation, except as far as it is provided in articles 5 and 8.

The status of the colonies and possessions of Great Britain and the Netherlands is, moreover, defined by the declarations inserted in the final protocol.

Article 12.

The execution of the reciprocal engagements contained in the present convention is subjected, inasmuch as need be, to the performance of the formalities and rules established by the constitutional laws of each of the contracting States.

The present convention shall be ratified and ratifications thereof shall be deposited at Brussels, at the Ministry of Foreign Affairs, on February 1, 1903, or earlier, if possible.

It is understood that the present convention shall only become binding after it has been ratified at least by the contracting States that have not been affected by the exceptional provision of article 6. In case one or several of the said States have not deposited their ratifications within the time provided for, the Belgian Government shall immediately endeavor to obtain a decision from the other signatory States as to the entering into force of the present convention among themselves.

In faith of which the respective plenipotentiaries have signed the present convention.

Done at Brussels, in one single copy, the 5th day of March, 1902.

II.—FINAL PROTOCOL.

At the moment of proceeding to the signature of the convention relating to the régime of sugars, entered into on this date by the Governments of Germany, Austria and Hungary, Belgium, Spain, France, Great Britain, Italy, the Netherlands, and Sweden, the plenipotentiaries have agreed to the following:

To article 3.

Considering that the purpose of a surtax is to protect efficaciously the internal market of producing countries, the high contracting parties reserve the right, each as it affects its own interests, to propose the increase of the surtax in case that considerable quantities of sugars from one of the contracting States should enter their countries; this increase to affect only the sugars coming from that State.

This proposition shall be addressed to the permanent commission, which will decide within a short delay, by a vote of the majority, upon the true foundation of the proposed measure, upon the duration of its application, and upon the rate of the increased tax; the latter not to exceed 1 franc per 100 kilograms (19 cents per 220 pounds).

The adhesion of the commission can only be given in case the invasion of the market in question should be the result of an economical condition of real inferiority, and not the result of a factitious increase of prices promoted by an understanding among producers.

To article 11.

A.—(1) The Government of Great Britain declares that no direct or indirect bounty shall be granted to sugars from colonies of the Crown during the existence of the convention.

(2) It declares also, by exceptional measure and while still reserving, in principle, its entire free action concerning the fiscal relations between the United Kingdom and its colonies and possessions, that during the existence of the convention no preference shall be granted in the United Kingdom to colonial sugars vis-a-vis the sugars coming from the contracting States.

(3) It declares that they will submit the convention to the autonomous colonies and to the East Indies in order that the latter may have the privilege of giving their adhesion thereto.

It is understood that the Government of His Britannic Majesty shall have the right to adhere to the convention in the name of the Crown colonies.

B.—The Government of the Netherlands declares that during the existence of the convention no bounty, either direct or indirect, shall be granted to sugars of the Dutch colonies, and that these sugars shall not be admitted into the Netherlands at a less rate than is applied to sugars coming from the contracting States.

The present final protocol, which shall be ratified at the same time as the convention concluded this date, shall be considered as an integral part of said convention and shall be of the same force, value, and duration.

In faith of which the plenipotentiaries have drafted the present protocol.

Done at Brussels, the 5th day of March, 1902.

CONGRESS FOR THE RELIEF OF THE BLIND IN BRUSSELS.

The Department has received from the Belgian legation, under date of Washington, February 5, 1902, notice of the International Congress for the Relief of the Blind, to be held in Brussels August 6 to 10, 1902, in the Palais des Academies.

An invitation is extended to the United States to be officially represented. A circular, with programme of questions to be submitted to the congress for discussion, is inclosed. The membership fee is 10 francs ($1.93). Women will be admitted to take part. An exposition of objects used in the intellectual, musical, and professional education of the blind will be held during the congress, and the organizing committee will be grateful for any gifts which may be made.

The questions to be discussed are:

Trades and professions by which the blind support themselves.

Expert aids in workshops of the blind.

Advantages and disadvantages of boarding schools and day schools for the workshops of adults.

Admission into schools and workshops of persons afflicted with only partial blindness.

Stenography for the blind.

Recreation for schools of the blind.

Causes of blindness in populous centers and methods of struggling against such causes.

The last congress of this character was held in Paris in 1900, and counted more than seven hundred members from all parts of the world. The hope is expressed that the cooperation of the friends of the blind will not be less in the coming congress.

AMERICAN SURGICAL INSTRUMENTS IN SWITZERLAND.

I believe there is a market for American surgical instruments in Switzerland. Statistics show that these articles have never been imported into this country, and I am informed by local dealers that there is at present a good prospect for their introduction.

In a recent conversation with the writer, Dr. Egli-Sinclair, an eminent physician of Zurich, who resided for many years in the United States, expressed surprise that so far no attempt had been made by our manufacturers to introduce these instruments into Switzerland, his opinion being that they would undoubtedly meet with a ready sale, as they were admittedly the best in the world. Our dental instruments are largely imported and, in fact, are used exclusively by Swiss practitioners.

I give below a list of the names and addresses of firms dealing in scientific instruments in Switzerland, and will be glad to furnish additional information upon application.

The best plan would be for our manufacturers to send an agent here, with an extensive line of samples; but if this is not convenient, catalogues might be effective, provided they are in the German or French language.

Herrn Baeuerle-De Witt, Chirurgische Instrumente, Basel.
Herren Knoebel & Laubscher, Chirurgische Instrumente, Basel.
Herrn I. Möschinger, Chirurgische Instrumente, Basel.
Sanitätsgeschäft Hausmann, A. G.
Monsieur C. F. Schneider, Instruments de Chirurgie, Geneva.
Dr. N. Gerber, Chirurgische Instrumente, Zurich.
Herren Hanhart & Ziegler, Chirurgische Instrumente, Zurich.
Herren P. A. Koelliker & Co, Chirurgische Instrumente, Zurich.
Herrn E. Lamprecht, Chirurgische Instrumente, Zurich.
Herrn G. Debrunner-Frey, Chirurgische Instrumente, Frauenfeld.
Herrn M. Schaerer, Chirurgische Instrumente, Berne.

HENRY H. MORGAN,
Consul.

AARAU, *February 11, 1902.*

PROJECTED TARIFF OF SWITZERLAND.

Minister Hardy transmits from Berne, February 20, 1902, copy of the projected Swiss tariff, which will be brought before the Conseil National and the Conseil d'Etat in April and May, respectively, though it will doubtless be much later, Mr. Hardy notes, before the amended form which may be agreed upon by these two bodies is

voted, after which there remains its possible submission to the people by referendum, as in the case of the tariff of 1892.

Mr. Hardy continues:

As is well known, the existing commercial treaties of Switzerland with Germany, Austria, and Italy expire on December 31, 1903. Thus a full year is allowed for the negotiation of new treaties.

The new schedule of duties contains 1,123 articles, as against 723 for the conventional tariff and 476 for the general tariff now in force. A marked increase will be noted in 500 of these 1,123 articles, especially in the case of agricultural products or their imitations, natural and artificially treated wines, fresh and dried grapes, cattle, meats, poultry, butter, margarin, cheese, etc. Some of these increases are for the purpose of providing enlarged revenue; but the schedule, as a whole, is generally regarded as a "tarif de guerre" on the basis of which concessions will be made which are apparent reductions, but, in fact, augmentations of the present rates.

The exports from the United States to Switzerland which will be most affected by the new rates are noted below:

Article.	Proposed tariff.		Old tariff.			
			General.		Conventional.	
Fruits, dried (with stones or kernels), per quintal (220.46 pounds)	*Francs.* 10.00	$1.93	*Francs.* 5.00	$0.96	*Francs.* 2.50	$0.48
Meat, smoked or salted, per quintal	16.00	3.08	8.00	1.54	6.00	1.16
Pork products, do	35.00	6.75	25.00	4.82	12.00	2.32
Leather, strong, of all sorts, including necks and sides, per quintal	24.00	4.63	8.00	1.54	8.00	1.54
Apparatus for heating and parts thereof made of cast iron (gray), not elsewhere specified:						
Cooking apparatus, per quintal	7.00	1.35	5.00	.96	5.00	.96
Radiators, do	10.00	1.93	(*)	(*)	(*)	(*)
Articles of cast iron, rough, unpolished, weighing each:						
100 kilograms (220.46 pounds) or more	3.00	.58	2.50 to 6.00	.48 to 1.16	2.50 to 5.00	.48 to .96
40 to 100 kilograms (88 to 220.46 pounds)	4.00	.77				
5 to 40 kilograms (11 to 88 pounds)	5.00	.96				
Less than 5 kilograms (11 pounds)	6.00	1.16				
Iron or steel in the form of hammers, levers, axes, hoes, pickaxes, shovels, horseshoes, lightning rods, steel in the form of files, not cut, per quintal	6.00	1.16	3.00 to 12.00	.58 to 2.32	3.00 to 12.00	.58 to 2.32
Agricultural machines, such as plows, harrows, cutivators, rollers, etc., per quintal	8.00	1.54	4.00	.77	4.00	.77
Bicycles, tandems, each	25.00	4.82	(†)	(†)	(‡)	(‡)
Tricycles, quadricycles, etc., do	35.00	6.75	(†)	(†)	(‡)	(‡)

* Not rated in the old tariff.

† 100 francs per 100 kilograms, or $19.30 per 220.46 pounds.

‡ 70 francs per 100 kilograms, or $13.51 per 220.46 pounds.

COMMERCIAL TRAVELERS IN SWITZERLAND.

I give below a table taken from the Schweizerisches Handelsamtsblatt, showing the number of commercial travelers visiting Switzerland in the last three years:

Country.	1901.	1900.	1899.
Germany	3,937	3,848	3,828
France	1,182	1,145	1,176
Italy	355	332	350
Austria-Hungary	204	203	173
Belgium	41	37	44
England	36	34	28
Holland	13	15	18
Spain	10	13	8
Luxemburg	5	6	5
Russia	2	1	....
Total	5,785	5,635	5,632

The number of Swiss travelers was 21,564.

It will be observed that Germany stands far in the lead in the number of travelers, with France second. The United States, which figured with one commercial traveler during the year 1900, does not appear for 1901. It must not be presumed from this that our goods are not in evidence in Switzerland. Our manufacturers have adopted the plan of establishing agencies throughout the country, and many of the Swiss drummers are carrying a line of American goods. The same may be said of German drummers, who represent American manufacturers having distributing warehouses in Germany.

HENRY H. MORGAN,

AARAU, *February 17, 1902.* *Consul.*

AMERICAN FURNITURE IN SWITZERLAND.

I give below translation of a letter I have received from Mr. Anton Waltisbühl, a large importer of American typewriters and office furniture, in answer to a communication I addressed to him in regard to the opening for American furniture in Switzerland:

The results obtained in the sale of American desks, chairs, and bookshelves are very satisfactory. These articles are well and rationally made, useful, strong, and cheap in comparison with Swiss prices. A great drawback is the ship and railway freight, and especially the duty.

The handling of American desks and similar furniture has been rendered somewhat difficult since the tariff has become more unfavorable. Up to the year 1900, American goods in Switzerland profited by the clause of the "most-favored nation."

This treaty is no longer in force, as the United States abrogated it in March, 1899. At present, all goods coming from the United States have to pay duty according to the general tariff, which means an increase of 50 per cent over that paid during the time of the most-favored-nation treaty. This makes a very considerable difference, the more so as the duty is paid on the gross weight.

The following table gives a comparison between the old rates of the duty and those now in force. It is much to be regretted that a new treaty between Switzerland and the United States has not been concluded.

Duty on furniture of ordinary wood per 100 kilograms (220.46 pounds) gross weight.

Description.	Most-favored-nation rate.		General tariff.	
	Francs.		*Francs.*	
Unfinished	10	$1.94	15	$2.90
Finished	15	2.90	25	4.83
Polished	25	4.83	50	9.65
Upholstered	38	7.33	50	9.65

Germany has the advantage of the most-favored-nation clause. That country, in addition to the rates of duty, profits also by lower freights, and it does not fail to take all possible advantage of the tariff difficulties between Switzerland and the United States. It sends with ever-increasing success German furniture made after the American pattern. I personally can not understand why the United States delays the renewal of the commercial treaty. From whatever point of view one looks at the matter, that country is the loser.

Such furniture as the Swiss are able to manufacture can hardly be imported, on account of the expense. The American import will, in my opinion, be confined to certain specialties which are made in the United States as standard articles, cheap and good, and, on the other hand, are neglected by the Swiss industry. For ordinary furniture, such as chairs, tables, beds, etc.—articles of simple construction made from common kinds of wood—the American goods will hardly ever find a market in this country.

The freight rate referred to by Mr. Waltisbühl from New York to Basel is 10.50 francs ($2.02) per 100 kilograms (220.46 pounds).

The subject, I believe, is worthy of investigation by our manufacturers.

HENRY H. MORGAN,
Consul.

AARAU, *January 23, 1902.*

ELECTRICITY FOR SWISS RAILWAYS.

Some days ago, the representatives of the five largest electrical engineering companies of Switzerland held a meeting at Olten, at which the question of replacing steam with electrical power on the Swiss railway system was discussed. The representatives of a firm which makes a specialty of the construction of turbines (having lately received a large order to provide turbines for Niagara Falls) proved by scientific demonstration that the power which could be

derived from Swiss waterfalls would be sufficient to provide enough electrical force for the entire railway system of the country.

It was decided to follow the example of Germany and constitute a society, composed of all the companies interested, which will furnish the funds necessary to investigate the subject.

The Aargauische Nachrichten, commenting on the project, says:

> The Swiss Government, which will within a few years be the owner of all the great Swiss railway lines, is aware of the importance of the plan, and competent officials have expressed the opinion that the authorities will not fail to largely subsidize the intended experiments. The question of rendering Switzerland more and more independent of foreign coal by transforming her water power into electricity is of vital importance for the country.

HENRY H. MORGAN,

AARAU, *January 23, 1902.* *Consul.*

METHOD OF KILLING ANIMALS AT PARIS POUND.

A lethal chamber for the destruction of lost dogs has been provided for the Paris pound. Thirty condemned dogs are placed in a cage, which is rolled onto a platform, which, by hydraulic force, sinks about 6 feet into the earth and is hermetically closed. Carbonic-acid gas is turned on and in the space of forty seconds every dog dies without a struggle. By the old system—the use of common gas—the dogs suffered for sometimes two and three minutes.

In the London pounds an admixture of carbonic-acid gas and chloroform is used, but it was decided here that as carbonic-acid gas is one of the most powerful anæsthetics known, the chloroform was superfluous. The cost of this lethal chamber was almost 10,000 francs ($1,930).

In the pounds of some of the cities in the United States, electricity is used for the destruction of the dogs. While this causes instant death, only one dog can, as I understand it, be killed at a time.

EDWARD SUMNER GLAVIS,

PARIS, *January 16, 1902.* *Consular Clerk.*

NOTES.

Amendments in Australian Tariff.—Consul-General Bray reports from Melbourne, February 24, 1902, the following amendments to the tariff* by the House of Representatives:

Article.	Previous proposal.	New duty.
Division VI.—Metals and machinery.		
Horseshoe nails.....per cwt...	7s. ($1.70).....	5s. ($1.21).
Division VII.—Oils, paints, and varnishes.		
Greases:		
In packages not exceeding 4 pounds in weight, per cwt.	.....	4s. (97 cents).
N. e. i.....	.....	2s. (48 cents).
Paints and colors:		
Ground, in liquid.....per cwt...	1s. and 15 per cent ad valorem...	Do.
Prepared for use.....do.....	.....do	4s. (97 cents).
Whiting.....do.....	Free.....	6d. (12 cents).
Varnishes.....per gallon...	1s. and 15 per cent ad valorem...	1s. 9d. (42 cents).
Division VIII.—Earthenware, cement, china, glass, and stone.		
Cement (Portland), plaster of paris, and other like preparations having magnesia or sulphate of lime as a basis, also gypsum, not prepared, per cwt.	1s. (24 cents).....	9d. (18 cents).
Stone, including marble and slate, viz, monumental, wrought, per cubic foot.	5s. ($1.21) and 15 per cent ad valorem.	25 per cent ad valorem.
Unwrought marble.....	.....	10 per cent ad valorem.

Trade Openings in Lourenço Marquez.—Consul Hollis, of Lourenço Marquez, under date of January 27, 1902, says that he has received from Messrs. Wilcken & Ackermann, of that city (branch house in Johannesburg), a request for American products. The house wishes to secure the agency for steel cars, locomotives, and other rolling stock; mining and electrical machinery; pitch pine, Oregon pine, etc., from the United States. Mr. Ackermann, one of the partners, is on his way to the United States to arrange for these agencies. Mr. Hollis believes that a large trade in these lines can be created in Southeast Africa, the Transvaal, Mozambique, and adjoining states. The consul also remarks that United States firms sometimes make the mistake of giving the agency for Portuguese

*See ADVANCE SHEETS No. 1201; CONSULAR REPORTS No. 256.

East Africa to a Natal house. This has been done recently in the case of a certain make of typewriters, to the serious detriment of the trade. He wishes to remind our exporters that Lourenço Marquez is not in South Africa; it is in Southeast Africa, and is the capital and chief port of Mozambique. There is nothing in common between Lourenço Marquez and the British colonies; on the contrary, they are trade rivals, and freight rates from Durban, Natal, to Lourenço Marquez are nearly as heavy, taken in connection with the transshipment charges, as the total rates from New York used to be. Mr. Hollis advises that local agents be appointed for all articles that it is desired to introduce into Mozambique, and that no reliance be placed upon subagents located in ports which are politically and economically widely separated from that province.

The consul also notes that in his report dated September 11, 1901,* he gave the address of Mr. Isaac J. Lithauer, American merchant, as Sun Court, Cornhill, London. Mr. Hollis has been requested to state that Mr. Lithauer's latest address is care of the United States Government Dispatch Agent, Trafalgar Square, London.

Arbitration Treaty between Bolivia and Peru.—Mr. Neill, secretary of the legation at Lima, under date of February 18, 1902, transmits a copy of the protocol† between Bolivia and Peru, submitting to arbitration the pending questions between the two countries. The provisions are summarized below:

The contracting parties bind themselves to submit to arbitration all controversies now pending and whatever questions may arise between them while the treaty is in force. The treaty shall continue in force during a period of ten years, dating from its ratification, and shall continue, unless denounced six months before the expiration of the period, for another eight years, and so successively. It is agreed that the arbitrator shall be the permanent tribunal of arbitration established in virtue of the resolutions which the Pan-American Congress adopts. In case (*a*) the tribunal shall not be able to establish itself according to said resolutions, and (*b*) if there shall be necessity of submitting to arbitration before the tribunal is established, the Government of the Argentine Republic, of Spain, or of the Mexican United States shall be designated as arbitrator in the order in which they are named. The arbitrator is competent (1) to decide upon the regularity of its constitution, the validity of compromise, and its interpretation; (2) to adopt the necessary measures and to dissipate all the difficulties which shall arise in the course of debate (questions of a technical or scientific character which may arise shall be referred for decision to the Royal Geographical Society of London or to the International Geodetical Institute of Berlin); (3) to designate the period of its office. The arbitrator shall decide strictly in accordance with the rules of international right and in questions of boundaries, with the American principle "uti possidetis" of 1810.

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*Advance Sheets No. 1177; Consular Reports No. 256.
†Advance Sheets No. 1247; Consular Reports No. 258.

Foreign Physicians and Dentists in Brazil.—Under date of February 1, 1902, Consul Kenneday writes from Para:

There is a federal statute in Brazil which provides that all physicians, surgeons, and dentists of foreign extraction who desire to practice their profession in any part of the country must first pass a prescribed examination at the medical colleges at Bahia and Rio de Janeiro. These examinations, which include languages and other branches not usually found in a medical curriculum, are said to be so severe that few foreigners have any chance of passing them successfully. It is now reported that this law is to be more rigidly enforced hereafter, especially in the case of dentists. There are several American dentists in Para who have been practicing here for years. They may now be required to go to Rio de Janeiro and take examinations, and in case of failure they will be compelled to give up their profession or leave the country. Although this is a very profitable field for medical practitioners, it should be remembered that the examinations are so severe as to necessitate two or three years' extra preparation.

Brazilian-United States Steamship Service.—Under date of February 5, 1902, Consul-General Seeger reports from Rio de Janeiro that the Lamport and Holt Line is about to add six steamers to its service between that port and New York. Two of the boats will be of about 5,000 tons dead weight each, with accommodations for 70 cabin and 50 steerage passengers. The others will carry 6,350 tons dead weight and will be fitted with shade decks, so as to be available for cattle transportation.

The Prince Line, continues Mr. Seeger, has also added a boat to its New York-Rio service. It has a capacity of 4,560 tons and draft of 22 feet, good accommodation for 12 passengers, and electric light all through. This is the first of four steamers specially constructed for this trade. The boats can stow up to 70,000 bags of coffee, and this special vessel is well suited for delicate cargoes. It will make the trip between New York and Rio in about eighteen days.

American Calicoes in Brazil.—Consul-General Seeger, of Rio de Janeiro, under date of February 18, 1902, says:

I believe that, in spite of the hard times prevailing here, there is a good market in Brazil for the cheaper kinds of American prints in fast colors. The trouble seems to be, however, that the manufacturers in America will make no concessions—as do the English and

Germans—to the peculiar tastes of the masses who are likely to buy those goods. It would be very easy for our manufacturers to procure samples of the patterns most salable in this market from dealers here. I received a letter the other day from a New York firm, containing some samples, which I submitted to the most important dry-goods house in this city. As a result, the firm received an order for 50 boxes of calico, and I was told that the purchase would have been much larger if the buyers had been accorded choice of patterns.

Treatment of Tobacco in British Guiana.—Consul Moulton sends from Demerara, March 7, 1902, copy of an ordinance regulating the treatment of tobacco in that colony, passed by the court of policy at its last session. The ordinance provides that it shall not be lawful to impregnate or weight tobacco with any foreign substance or with water to an extent of more than 5 per cent of the weight thereof at the time of importation, except in premises licensed for the purpose and under the supervision of the comptroller of customs. The penalty for violation of the above is $500. On the removal from licensed premises of any tobacco so impregnated or weighted, there shall be levied thereon as excise duty, if it is imported tobacco, the difference between the duty actually paid and the duty which would be payable if it were then being imported.

Labor Conditions in Rossland, British Columbia.—Acting Consular Agent Ohren writes from Rossland, March 8, 1902:

Rossland is recovering from the effects of the recent labor troubles, which caused disastrous depression. At some of the mines, the miners have not yet arrived at a settlement with the owners, and those mines are worked by what the unions here call "unfair labor." The merchants inform me that business is steadily increasing. Commercial travelers whom I have questioned say that Rossland is the most prosperous town in this section of the country, in spite of the fact that labor troubles have for several months caused an almost complete cessation of labor at the mines. The Le Roi mine, on February 27, 1902, added 42 men to its workers, who are to engage in sinking new shafts and drifts. The shipments from the mines have increased wonderfully, and I expect that those for the year ended June 30, 1902, will far exceed the exports of the previous year. The exports from this consular agency during the past month were valued at $424,541.

Steamship Connection between New York and Greece.—Under date of February 12, 1902, Minister Francis, of Athens, reports the establishment of direct steamship communication between New York and Greece. A contract for ten years has been made between the Hamburg-American and the Levant lines guaranteeing an initial service of monthly departures. In addition to carrying freight, each steamship will have accommodations for from 400 to 500 steerage passengers. The trip between New York and Piræus will be made in eighteen days; the rate for meals and berth is $40 per passenger. The itinerary is as follows: Outward—New York, Algiers, Malta, Alexandria, Piræus, Smyrna, Constantinople, Odessa, and Novorossisk; inward—Odessa, Constantinople, Piræus, Gythion, Malta, and New York. The sailing list for the months of February, March, April, May, and June has been published. The lack of a direct line of steamships plying between an American port and Greece, adds Mr. Francis, has necessitated the reshipment of exports and naturally increased freight charges, thereby handicapping American manufacturers in competing with other nations for the Greek trade.

Imitations of American Sheeting in Turkey.—Consul Norton writes from Harput, February 26, 1902:

Referring to reports on the opening for American cotton fabrics here, written under the dates of October 12, 1901, and January 6, 1902,* I would mention the recent appearance in the market of a very clever imitation of the leading brand of American sheeting. The brand in question is the Cabot A, well known and highly valued throughout the Orient. Within a few weeks, merchants here have displayed an imitation, stated to be of Italian manufacture, which has deceived many buyers. The price per piece of 40 yards is $2.52½, as opposed to the current quotations of $3.05⅓ for the genuine Cabot A. Close inspection is required to detect the inferior quality of the fabric. The trade-mark misleads readily. It reads "Dwright Cabot A," instead of "Dwight Cabot A," while the design of a goat replaces the eagle of the registered trade-mark. I am informed that this article has practically driven the genuine Cabot from the market of Aleppo. This consulate has called attention to the effort at deception, and the manufacturers of the American article have been duly notified, a sample being forwarded to them.

Industrial Exposition at Osaka.—The Department has received from Minister Buck, of Tokyo, under date of February 28, 1902, a report in regard to the industrial exposition to be held at Osaka

*ADVANCE SHEETS Nos. 1200 and 1274; CONSULAR REPORTS No. 257.

from March 1 to July 31, 1902. The regulations of the exposition were published in full in ADVANCE SHEETS No. 1283 (March 7, 1902). Mr. Buck adds that foreign exhibits are exempted from customs duties in case they are used in Japan solely for the purposes of the exhibition and are reexported within two months of its close. Owing to increased demand for space, the ground intended to be set aside for foreign exhibits has been enlarged to five times the original estimate, being now 54,000 square feet, which seems to indicate, says the minister, that a considerable representation of foreign industrial interests is anticipated. Mr. Buck transmits copies of the form of application for exhibition, which are filed in the Bureau of Foreign Commerce. These will be sent to parties desiring them until the supply is exhausted.

Fishery Exposition at Vienna.—The Department has received from the Austrian legation, Washington, under date of February 18, 1902, notice of the International Fishery Exhibition to be held in Vienna from September 6 to 21, 1902, in connection with the Eighth Austrian Fishery Congress. An invitation is extended to societies, clubs, and institutions connected with fishing to participate in the exposition. Programmes are inclosed.* The exhibition will include: (*a*) Fresh and salt water fish and water animals, live; (*b*) dead fish and water animals, fresh, conserved, prepared for illustration; (*c*) breeding apparatus and pearl fishery; (*d*) natural and artificial foods; (*e*) diseases and enemies of fish; (*f*) methods of fishing; (*g*) preservation and transportation; (*h*) literature and history; (*j*) manufactures from fish materials; (*k*) cooking and preparing fish for table. Applications for space are to be addressed, as early as possible, to the committee, 1 Herrengasse 13, Vienna. Steps have been taken to secure exemption from duty and reduced railway rates for goods intended for exhibition.

Lime and Sand Stone Building Bricks.—Consul Baehr sends the following from Magdeburg:

Referring to my report of March 21, 1901,† relative to artificial building stone made of lime and sand, I have received numerous inquiries from interested parties in the United States, requesting me to state minutely the details of this process. In response to this request, I have investigated this industry carefully, and I take this means of stating the result, as it is impossible to answer all who inquire.

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*Filed in the Bureau of Foreign Commerce, where they may be examined by parties interested.
†ADVANCE SHEETS No. 990; CONSULAR REPORTS No. 248.

I would refer interested parties to the firm of H. Huennekes & Co., 120 Liberty street, New York City, who can answer all questions and give full particulars about the so-called "System Huennekes." It is perhaps the simplest system in existence, and produces a thoroughly sound and weatherproof brick at a small cost.

I think this industry will make great strides in our country, as we have quantities of sand, which is the principal substance used in the manufacture of these bricks.

Demand for American Machinery in Belgium.—Consul Winslow writes from Liege, February 17, 1902, that the business outlook in that part of Belgium is much brighter, and that there is a fine opening for American goods, especially labor-saving machinery. Belgian manufacturers are beginning to realize that in order to successfully meet the competition of the United States, up-to-date machinery is necessary, and in the opinion of the consul there is in that country a market for this class of our exports. He says that he has recently had many calls for addresses of American firms engaged in various lines of manufacture, and that he is cognizant of an opportunity to furnish tools and machinery for an extensive rubber plant, as well as an outfit for a manufactory of enameled ware, communications in regard to which may be addressed to John Gross, rue Chevanfosse 13, Liege.

Margarin and Artificial Butter in Belgium.—Consul Roosevelt reports from Brussels, March 5, 1902:

A manufacturer of artificial butter resembling the natural product was recently prosecuted for selling it under another name than margarin. The court decided that the product could not be assimilated with margarin and acquitted the manufacturer. As dealers in natural butter consider that their trade will thereby suffer, they have petitioned the Minister of Agriculture that the law of May 4, 1900, be amended to read as follows:

ARTICLE 2. All natural fat other than butter of whatever origin, animal or vegetable, having undergone, for the purpose of sale, a mixture in any way whatever with any other fat, natural or artificial, and presenting one or more exterior characteristics of butter, such as appearance, consistency, color, smell, taste, or degree of firmness, is designated under the name of margarin.

The petition also requests that several modifications be made in packing, in the labels or signs of margarin dealers, and in the placing of margarin near natural butter during transportation.

Swedish Tariff on Cameras.—A cablegram from Minister Thomas, of Stockholm, says that the Riksdag, on March 5, voted to make the duty on photographic cameras 1 crown (26.8 cents) per kilogram (2.2046 pounds) on articles weighing 5 kilograms (11 pounds) and over; on cameras weighing less than 5 kilograms, the duty will be 5 crowns ($1.34).

Under date of March 5, 1902, Mr. Thomas confirms his telegram and adds that the act will become law on its approval by the King, which will surely be given. In the usual course, the law will not take effect till January 1, 1903. Until then, the provisions of the old tariff will remain in force, which place a duty of 2 crowns (53.6 cents) per kilogram (2.2046 pounds) on all photographic cameras, irrespective of weight. The importation of cameras from the United States into Sweden, says Mr. Thomas, has been large in recent years. Great numbers of small American cameras, such as are used by tourists, are sold and give universal satisfaction.

Oil as Fuel for Norwegian Vessels.—Consul-General Bordewich reports from Christiania, February 25, 1902, that according to the local press experiments are to be made with oil as fuel for boilers at the Government navy-yards at Carljohansværn, Horten. The attention of parties interested, says Mr. Bordewich, has for some time been directed to this question, as freights are low and coal expensive. The latest quotations at Christiania are: Newcastle small, 8s. ($1.94) per ton at wharf; Newcastle large, 12s. ($2.91) per ton at wharf. Of the refined oil imported annually into Norway, $963,000 worth comes America and $99,000 worth from Russia. It is not believed probable that the navy will make extensive use of oil, because the pipe boilers are not adapted for this kind of fuel; but it is thought that the merchant marine will be able to save considerable expenditures by the employment of oil.

Trade Openings in Poland.—Vice-Consul Horodynski reports from Warsaw, February 10, 1902, in regard to the openings for American products at that point. A number of merchants, he says, desire to enter into commercial relations with American manufacturers of paper, stationery, leather work, bookbinding materials, and this line of trade generally; and they have requested the consul to send addresses, price lists, circulars, and samples, so as to enable the purchasers to become familiar with the qualities of the products.

Under date of February 12, Mr. Horodynski sends translation of a letter from the executive committee of the agricultural exhibition

to be held at Vilno, in August next, which sets forth that the exhibit is not only for the purpose of showing the advance in agriculture in the districts represented, but also to enable agriculturists to study improvements in this line of industry. The committee wishes, in view of the likelihood that the commercial treaty between Russia and Germany will not be renewed after next year, to see samples of farm machinery and products from other countries, and would like for United States exporters to be represented. It is possible, it says, that the German goods heretofore in use will be replaced by other foreign articles.

American Coal in Denmark.—Under date of February 18, 1902, Consul Freeman, of Copenhagen, informs the Department of the arrival at that place of a vessel with the first cargo of American coal ever shipped to Denmark—the *Freya*, with 6,000 tons, consigned to the Copenhagen Gas Company. The Dominion Coal Company, of Canada, is also making efforts to enter Scandinavian markets, and the consul says that its local agents have just closed a contract for the delivery next month of a cargo to the city gas works. Swedish State railways have made a trial of Canadian steam coal, and an effort will be made to secure a similar test by the railroads of Denmark. The consul adds that the principal obstacle in the way of selling trans-Atlantic coal in Denmark has been high prices. The local agents for United States coal are Messrs. M. & G. Melchoir.

Congress for the Protection of Women.—The Department has received from the French embassy, Washington, under date of March 21, 1902, notice of a proposed congress for the international repression of the "Traite des Blanches" (white-slave trade) to be held at Paris, June 16, 1902. A tentative programme of questions to be discussed before the congress is enclosed, and an invitation is extended to the Government of the United States to be represented. The first congress of this character, held in London in June, 1899, expressed the desire that an international agreement might be established: (1) To inflict, as far as possible, the same degree of punishment for the enticing away or kidnaping of women and girls by violence, fraud, or abuse of authority and their admission and retention in houses of ill repute; (2) to make simultaneous inquiries regarding the crime when the circumstances which characterize it occur in different countries; (3) to prevent any contingency of conflict regarding the precise determination of the place where judgment shall be rendered; (4) lastly, to permit the extradition of guilty parties by international treaties.

All-Water Route to Switzerland.—Consul Gifford, of Basel, sends, February 27, 1902, the following description of a proposed all-water route from that city to the sea—the plan of a young Swiss engineer by the name of Gelpke:

Basel is over 300 miles from Amsterdam, the nearest port on the North Sea. Mr. Gelpke proposes to render the Rhine navigable for freight steamers at all seasons of the year by regulating its water level. Beginning at the German frontier near Basel, he suggests the construction of fourteen dams, provided with suitable locks for the passage of vessels, and with sluices for driving turbines for the production of electrical power. It is estimated that the project would require $20,000,000 to carry it to completion and that the turbines would yield from 100,000 to 150,000 horsepower, which could be utilized by industrial establishments in Alsace and in the Grand Duchy of Baden. Another scheme to place Basel in water communication with the sea that is being considered by the promoters of the above-mentioned project is the construction of a single dam on the Rhine in Swiss territory and the connection of Basel with the famous Rhine-Rhone Canal, a branch of which enters the Rhine 4 miles below that city.

New Vine Disease in France.—Consul Covert writes from Lyons, February 21, 1902:

The discovery of a new disease of the vine has just been communicated to the Academy of Sciences by several wine growers. The organ of the farmers in this section of France, L'Agriculture Moderne, says it is caused by an acarian, the *Cæpophagus echinopus*, in the worst form:

Its destructiveness heretofore has been confined to California, Chile, and Australia, but conclusive evidence exists to the effect that it can easily adapt itself to the climate of France.

The *Cæpophagus* attacks the roots of vines already diseased in low, marshy grounds. The use of sulphurated carbon arrests the disease.

Electrical Enterprise in Madrid.—Vice-Consul Wood reports from Madrid, March 14, 1902, that according to the Madrid papers a new electrical company has been formed in that city, with a capital of 6,000,000 pesetas (about $960,000), for utilizing for illumination, motive power, traction, heating, etc., the hydraulic energy of a waterfall in the Jarama River, situated at a distance of 18 kilometers (11 miles) from Madrid. About 3,000 horsepower will be developed. This enterprise will have a wide patronage, on account of the considerable number of factories which already exist and those projected

in that district. Extensions are shortly to be made of certain street-car lines, and other roads are contemplating a change from mule power to electricity.

These facts, says Mr. Wood, may be of interest to manufacturers of electrical material in the United States, as large quantities of such supplies will be needed. The managers of the new company have informed Mr. Wood that it is their intention to purchase most of the material required by them in the United States.

Export of Sicilian Lemons.—Consul Heingartner writes from Catania, February 15, 1902, as follows:

It is estimated that about 700,000 boxes of the winter crop of lemons remain for export. The quality of the fruit is considered good. Prices, however, are very low, varying from 3.50 lire (65 cents) to 5.50 lire ($1.02) a box. A shipment of 300 boxes to the United States was made from this port a few days ago, the first within a year. The freight was 30.4 cents a box.

The following is a translation of a press dispatch, dated Rome, February 10:

> All the reports from the Italian representatives in the United States of America agree in confirming that this year the fruit crop in the United States will be very limited. It is hoped, therefore, that Sicilian fruits will find an easy outlet in America.

German Beer Statistics.—Under date of March 5, 1902, Consul-General Guenther, of Frankfort, says:

From the latest volume of German statistics, I have compiled the following figures with reference to the beer industry. The production of beer in the German Empire during the year ended March 31, 1901, was 1,860,624,800 gallons. The imports of foreign beer (mostly Pilsen beer from Bohemia, probably) were 14,889,600 gallons, and the exports of German beer amounted to 21,172,800 gallons. The estimated consumption of beer per capita of population was 132.2 quarts for the whole of the Empire. The Government revenues derived from the manufacture of beer in Germany amounted to $22,715,976. The tax on beer per capita amounted to 40.9 cents.

German-Chilean Commerce.—Consul Kehl sends from Stettin, February 4, 1902, translation of a newspaper article, as follows:

> Chile has for a long time been Germany's most important market on the west coast of South America. Twenty-seven per cent of the total import during 1900 came from Germany, and 12 per cent of the export went to Germany. Great

Britain has the first place in Chilean trade, taking 33 per cent of the exports and sending to Chile six times as much as Germany. Next to Germany in trade comes the United States, whose export and import amount to about one-third of the German.

The principal article of export is saltpeter, amounting to 1,465,935 tons in 1900, of which Germany imported 163,296 tons.

Bicycles in Paraguay.—Consul Ruffin reports from Asuncion, January 31, 1902:

Bicycles are being introduced here in considerable numbers, owing to the fact that the streets in the city are being paved and some of the suburban thoroughfares placed in good order. This is a new market for bicycles, and those which are particularly desired should be from 65 to 70 centimeters (25.6 to 27.5 inches) in diameter, weighing 16 to 18 kilograms (35.6 to 39.6 pounds). The cost should be from $16 to $18. In order to introduce the wheel here, three or four samples should be sent. The importation of bicycles is free this year, but it is likely that next year a duty will be placed thereon. Carriages, also, are permitted to come in free. Most of the bicycles now in use have come from England and Germany.

Railway from Chancay to Cerro de Pasco, Peru.—Mr. Neill, secretary of legation at Lima, under date of February 8, 1902, sends copy and translation of an executive decree granting to Mr. James B. Haggin, the concessionnaire of the railroad from La Oroya to Cerro de Pasco, a term of one year in order to complete a preliminary survey of the projected line. If the practicability of the undertaking is established, the Government will grant the concession. Mr. Neill adds that the proposed new railroad will start from Chancay or Huacho, on the coast, about 27 miles north from Callao, and run directly into the interior of the country about 100 miles to Cerro de Pasco, in the center of the famous mines.

Rubber Company in Peru.—The secretary of legation at Lima, Mr. Neill, under date of February 19, 1902, reports the formation of a rubber company in that city with a capital of £26,000 ($126,529) to operate in the province of Sandia, Department of Puno. Another company, Mr. Neill is informed, will take possession of 50,000 hectares (123,550 acres) of land near Marcapata, to exploit the rubber thereon. It is also reported that an individual has acquired some good rubber lands in the same neighborhood, and some 500 pickers are already working and getting about 100 pounds per month. The

"denouncing," adds Mr. Neill, costs little, although the measurement of the concessions is expensive. To measure 30,000 hectares (74,130 acres) costs about £1,000 ($4,870). It is believed that rubber is destined to become a most important source of wealth to Peru.

New Department in Honduras.—Under date of March 3, 1902, Consul Johnston writes from Utilla:

The Congress now in session in this Republic has formed a new department on the north coast, called Atlantida. It extends from Tela on the west to Belfata on the east, being about 60 by 50 miles, and taking in the rich banana land along the coast. The seat of government will be at La Ceiba, and the law will go into effect September 15, 1902. Action is being taken at La Ceiba in regard to the putting in of waterworks and other improvements. The change will cause much building there, especially as lumber has been put on the free list for one year.

Tidal Wave in Salvador.—Consul-General Jenkins reports from San Salvador, February 21, 1902, that on the 16th instant a tidal wave 10 feet high struck the whole coast of Salvador; it was followed by two other waves of less height. A small village, named "La Barra de Santiago" (some 12 or 15 miles up the coast from Acajutla), was inundated, the buildings razed to the ground, and many people drowned. The village contained 200 inhabitants.

Dock at Corinto.—Consul Donaldson reports from Managua, February 20, 1902, that the Nicaraguan Congress has approved the contract for the construction of a dock at the port of Corinto.* Mr. T. M. Solomon, the contractor, is allowed fifty years before the dock reverts to the Government.

Australian Wool for the United States.—Consul-General Bray, of Melbourne, under date of February 15, 1902, reports that the total shipments of wool from Melbourne to the United States during the season 1901–2 amounted to 28,258 bales, against 26,942 in the previous season, or an increase of 1,316 bales. The consul at Sydney reports shipments to the amount of 7,535 bales from that port, making a total of 35,793 bales shipped from Australia to the United States.

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*See ADVANCE SHEETS No. 1046 (May 25, 1901); CONSULAR REPORTS No. 250, p. 444.

Hamburg-Australian Traffic.—Consul-General Guenther reports from Frankfort, February 25, 1902:

The traffic between Hamburg and Australia, according to German and English papers, doubled last year. In 1900, 29 vessels, with a tonnage of 72,000, were engaged in service between Hamburg and Australia; in 1901 the number was 51, with a tonnage of 141,000. The number of steamers was 25 in 1900 and 45 in 1901.

Opportunity for American Harness and Saddlery in Syria.—Vice and Deputy Consul Magelssen writes from Beirut, February 25, 1902, that there is a good market for American harness and saddlery in that city, if these goods are introduced at prices low enough to meet European competition. There are over 500 carriages in Beirut alone, but the consul knows of no attempt on the part of an American house to secure this trade.

Russian Railroads in Persia.—Under date of January 24, 1902, Minister Griscom, of Teheran, reports that, in view of the many inquiries received regarding the possibility of obtaining concessions for the construction and operation of railroads in Persia, he made the necessary inquiries and was informed of the existence of an agreement between the Persian and Russian Governments giving to the latter the exclusive right to construct railroads in Persia for a period of ten years from the accession of the present Shah. This agreement has still seven years to run.

Exposition of Sportsmanship at St. Petersburg.—Consul-General Holloway transmits from St. Petersburg, under date of February 25, 1902, circulars and rules relative to the International Exposition of Sports, which will be held in that city from May to July, 1902.* The circulars, etc., are filed in the Department of State, and may be consulted by parties interested.

Life-Saving Congress at Nantes.—Under date of March 1, 1902, Ambassador Porter, of Paris, sends copy and translation of a letter received from the Society of Life Savers of Brittany, relative to an international congress of life saving, preservation of health, and maritime security which will take place at Nantes July 31 to August 4, 1902, under the honorary presidency of the Minister of the

*ADVANCE SHEETS No. 1268 (February 18, 1902).

Marine. The hope is expressed that the Government of the United States will be represented. The congress will consider life saving in water and from fire, piloting in fog, life saving on board steamships, moral and physical development of sailors and fishermen, etc.

International Peace Congress at Monaco.—The Department has received from the governor-general of the principality of Monaco, under date of February 28, 1902, notice of the Eleventh International Peace Congress, to be held in Monaco from April 2 to 7, 1902. An invitation is extended to the United States to participate in the congress and to send official delegates. The tenth congress was held in Paris in 1900. The questions considered will be the measures to be recommended tending to the development and maintenance of peace.

Congress of Historical Sciences at Rome.—A cablegram from Ambassador Meyer, dated Rome, March 15, 1902, says that the meeting of the International Congress of Historical Sciences, which was to have been held this spring,* has been postponed. Advice as to the new date will be given as soon as it is fixed.

Demand for Band Steel in Germany.—Consul Langer writes from Solingen, February 25, 1902, that he has received a communication from Otto Fuehrer, Remscheid-Vieringhausen, Germany, importer of iron, steel, wire, and tin, asking for the names of firms manufacturing band steel used in the manufacture of gongs and bells, the house being desirous of purchasing this article in the United States. Parties interested can communicate directly with the inquirer.

German Regulation for the Sale of Butter.—Under date of March 6, 1902, Consul-General Guenther, of Frankfort, writes:

The Reichsanzeiger publishes the regulation with reference to the sale of butter in Germany which will go into effect on July 1, 1902. According to this, it will be unlawful to sell or offer for sale butter which in 100 parts of weight contains less than 80 parts of fat or more than 18 parts of water if unsalted, or more than 16 parts of water if salted.

*Advance Sheets No. 1110; Consular Reports No. 253.

Dutch Excise on Wine Used for Cognac.—Under date of February 12, 1902, Minister Newel, of The Hague, sends translation of a royal order of December 5, 1901, containing provisions with regard to the exemption from excise of wine used in the manufacture of cognac. This exemption applies to wines from abroad as well as to wines admitted to distilleries from entrepôts or storing places. The order sets forth the regulations to be observed in preventing abuse of the privileges thus accorded. The Minister of Finance is authorized to limit the exemption to a certain quantity per annum.

Consular Reports Transmitted to Other Departments.—The following reports from consular officers (originals or copies) have been transmitted since the date of the last report to other Departments for publication or for other action thereon:

Consular officer reporting.	Date.	Subject.	Department to which referred.
H. W. Diederich, Bremen.....	Feb. 13, 1902	Emigration via Bremen and Hamburg.	Bureau of Immigration.
Do	Mar. 8, 1902	Emigration via Hamburg..	Do.
J. L. Bittinger, Montreal.....	.....do	Census of Canada.....	Census Bureau.
Do	Mar. 13, 1902	Vital statistics of Canada..	Marine-Hospital Service.
M. J. Baehr, Magdeburg.....	Feb. 19, 1902	Sugar-beet pulp as cattle food.	Department of Agriculture.
G. W. Roosevelt, Brussels.....	Feb. 2, 1902	Dairy industry of Belgium.	Do.
V. E. Nelson, Bergen.....	Feb. 21, 1902	Tuberculosis	Marine-Hospital Service.
R. S. S. Bergh, Gothenburg..	Mar. 19, 1902	.....do	Do.
R. Guenther, Frankfort.....	Mar. 3, 1902	Preserving fresh fruit.....	Department of Agriculture.
G. H. Murphy, Frankfort.....	Mar. 20, 1902	Cancer investigation.....	Marine-Hospital Service.
G. F. Lincoln, Antwerp.....	Mar. 6, 1902	Labor in Belgium.....	Department of Labor.
F. S. S. Johnson, Stanbridge..	Mar. 19, 1902	Nationality of Canadians..	Census Bureau.
D. Swiney, Cork.....	Mar. 11. 1902	Agriculture in Ireland.....	Department of Agriculture.
E. Schneegans, Saigon.....	Jan. 30, 1902	Rice-market condition.....	Do.
Do	Feb. 13, 1902	.....do	Do.
H. L. Washington, Weimar...	Mar. 19, 1902	Coinage of Switzerland...	Treasury Department.
A. M. Thackara, Havre.....	Mar. 3, 1902	Cultivation of soya.....	Department of Agriculture.
B. F. Liefeld, Freiburg	Mar. 21, 1902	Emigration from Ireland.	Treasury Department.
R. M. Bartleman, Valencia...	Mar. 19, 1902	Labor in Spain.....	Department of Labor.
J. C. Freeman, Copenhagen..	Mar. 20, 1902	Emigration from Denmark.	Bureau of Immigration.
A. W. Tourgée, Bordeaux.....	Mar. 26, 1902	Strikes in France.....	Department of Labor.
W. P. Smyth, Hull.....	....	Manufacture of Cheshire cheese.	Department of Agriculture.
W. T. Griffin, Limoges.....	Mar. 26, 1902	Wages and cost of living in France.	Department of Labor.
E. Seeger, Rio de Janeiro.....	Feb. 5, 1902	State of Rio Grande do Sul.	Bureau of American Republics.

FOREIGN REPORTS AND PUBLICATIONS.

Commercial Movement of Kyao-chau.—The following details of the commercial movement of Kyao-chau are taken from La Quinzaine Coloniale, Paris, March 10, 1902:

The total value of imports coming directly from foreign countries during the year 1900 was $114,302. The United States headed the list with $85,982 for mineral oil alone. Imports from Japan were given at $22,051, made up of cotton thread, matches, and cotton goods (T cloths, coverings, handkerchiefs, and towels). The importations via Shanghai and other Chinese ports were valued at $340,112. Foreign imports, which will increase as soon as the railway into the heart of Shantung is open to traffic, consist chiefly of gray and white shirtings, English and Japanese T cloths (32 inches), Turkey reds, Italian cottons, Japanese as well as Indian cotton thread, liquid indigo, Japanese matches, American and Russian mineral oil, and white and brown sugar. Up to the present time, the whole southeastern part of the province has been supplied with foreign goods at Ts'ing-Kiang-P'ou, in the center of Kiang-Sou, on the grand canal and in constant communication by junks with Tehing-Kiang. The total value of native imports was $1,609,389. Cotton threads manufactured at Shanghai have already appeared upon the market of Kyao-chau to the amount of 236,133 pounds. Over 9,000,000 pounds of paper were brought by junks from Ningpo and Fuchau. This paper is in great demand at the capital and in the principal towns of the province. The total value of exports was only $804,017, including the reexports, which amounted to $7,951. The principal articles of export are straw braids, salt pork, fruits and vegetables, vermicelli, beans and groundnuts, oil from beans and from groundnuts, melon seeds, leather, furs, and silks. The greater part of these products was sent to Chinese ports. The distribution of the export trade by countries was:

England	$3,235
United States	2,545
Europe (except England and Russia)	17,270
Japan	216
Chinese ports	772,800
Reexports	7,951
Total	804,017

The ancient Chinese village of Tsintau has been replaced by a town provided with all European comforts. The streets are well kept and lighted with electricity, a system of sewerage has been constructed, and in a short time the town will be provided with excellent spring water, brought from the foot of Mount Laoshan. Magnificent private residences and hotels of the first order are already found there. The German Catholic Mission has decided to establish schools for boys and girls. Cutting forest trees is forbidden under the severest penalties, while the replanting of the hills has been undertaken on a vast scale; the forest administration has planted millions of pine cones and acorns, which have begun to sprout. The port works (construction of an outside breakwater and dredging of the bay) are being

pushed with the greatest activity. A light-house has been constructed at the western end of the peninsula of Tsintau. The light (electric) is visible for 16 miles. A cable has been laid by the Great Northern Telegraph Company for the German Government between Tsintau and Shanghai, and another between Tsintau and Chefoo. The first section (47.2 miles) of the railway of Weihien was inaugurated by the German Government April 8, 1901. The political troubles interrupted the work for months, and it was resumed under the protection of German soldiers, who were garrisoned about half way between Tsintau and Weihien in the place of Chinese regulars. The metallic bridge of the Weiho is nearly completed. There only remains the section comprised between Weiho and Weihien, which crosses the famous coal basin of that name. It is expected that the whole line will be finished and open to traffic before the end of the year. Important beds of excellent anthracite have been discovered in the mining district of Ma-Ssen, south of Weihien. Work was also interrupted here during the troubles, but was resumed in November. The coal beds of the Shantung, which are more extended, will be worked by German miners as soon as the railway shall give access to them. The Shantung Bergbau Gesellschaft (capital of $2,856,000) has bought a tract of ground rich in diamonds, 15 miles south of Yi-Tchéou-Fou, besides iron mines, and is trying to obtain authority to exploit the galena mines southwest of the capital.

Japanese Trade Relations with Korea.—The following extracts are taken from a report in the Nachrichten für Handel und Industrie, Berlin, February 13, 1902:

The location and climate of Korea, as well as the historical relations of Japan with this country, account for the fact that great numbers of Japanese emigrants are going there. The foreign population of Korea numbers 20,000 souls, of whom 17,000 are Japanese. They have settled in the capital and in the open ports, and carry on trade with their native land. The Japanese trade with Korea amounted in 1884 to only 746,000 yen* ($371,508). It now forms the principal part of the Korean foreign trade, especially since the Chinese war. The increasing development of this trade is shown in the following table:

Year.	Japanese export to Korea.	Japanese import from Korea.	Total trade of Korea.
1895	$1,908,075	$1,456,849	$5,262,004
1896	1,677,111	2,549,225	5,611,628
1897	2,587,893	4,414,451	9,482,621
1898	2,910,477	2,388,424	8,732,308
1899	3,483,973	2,478,131	7,622,225
1900	4,956,729	4,385,198	10,185,824

These figures do not include precious metals.

Among the Japanese articles of export, cloth, cotton yarns, and cotton textiles have the first place, reaching a value of more than 6,000,000 yen ($2,988,000) in 1900. Other important articles are cigarettes, sake, lucifer matches, iron and manufactures of, porcelain, salt, matting, and mats. Among the products which Japan

*The value of the yen is taken at 49.8 cents for purposes of comparison.

imports from Korea, food articles rank first—as rice, beans, grain, and salted meats; then come hides and fertilizers. The means of communication are for the most part in Japanese hands. The coast trade of Korea, as well as that with the other countries of eastern Asia, is carried on with Japanese vessels. A series of Japanese post establishments manages the Korean mail and gold traffic, which in 1900 was valued at over 3,000,000 yen ($1,494,000). The railway which connects the capital, Seoul, with the port of Chemulpo was established with the assistance of the Japanese Government and is now under Japanese management. The construction of the railway from Seoul to Fusan, which will be 285.8 miles long, is being carried on by Japanese business men. They have formed a joint-stock company with a nominal capital of 25,000,000 yen ($12,450,000), and 6 per cent interest has been guaranteed by the Japanese Government on the paid-in capital for fifteen years. This assistance given the Korean roads means sacrifices for the Japanese exchequer. It shows what value the Japanese place upon the strengthening of their influence in Korea, and what advantages they hope to secure by facilitating the means of communication in the country and thereby developing their trade.

Butter Trade of Denmark.—The Revue du Commerce Extérieur, Paris, February 22, 1902, says:

According to a recent publication of the Danish statistical bureau, the importation of butter into Denmark notably increased during the year 1900. This fact is the more interesting, as this product constitutes the principal wealth of this country. The exportation of butter from Denmark was valued in 1899 at 138,000,000 crowns ($36,984,000); in 1900, at 147,164,000 crowns ($39,439,952). The greater part of this exportation continues to be directed to England—147,543,000 pounds out of a total of 153,096,000 pounds. The importation of butter in 1899 was estimated at 34,088,000 pounds; in 1900, this import reached 42,360,000 pounds, an increase of 8,272,000 pounds. The value passed from 30,527,000 crowns to 37,500,000 crowns ($8,181,236 to $10,050,000). The principal country of origin is Russia, which furnished, in 1900, 24,963,000 pounds. It is difficult to learn the quantities furnished by Finland, the eastern provinces, or Siberia. However, the traffic with Siberia is increasing, and the merchants of Copenhagen interest themselves in developing it, even sending specialists to organize Siberian dairies and butter factories. About 16,000,000 pounds came from Sweden. Germany and the United States contribute only a trifling amount to this trade, the German export hardly exceeding 500,000 pounds. The importation of such vast quantities of butter into Denmark is explained in different ways. First, in order to satisfy their local clientele, Danish merchants have to supply themselves with second-grade butter. Then, this country possesses a special maritime equipment for the transportation of butter, which attracts to it butter from neighboring countries to be forwarded. Lastly, it appears that, notwithstanding the provisions taken to prevent counterfeiting, a part of this imported butter is sold abroad as the national product. It is difficult to say exactly how much. It is certain that the local commerce is perfectly aware of the danger of frauds of this kind, and 625 cooperative dairies (of the 1,100 in Denmark) have just decided that they will hereafter have only one mark, which will be more easily protected and guaranteed. The design is four horns, surrounded by the name of the association, cut on the casks.

Trade of Bulgaria in 1901.—The Nachrichten für Handel und Industrie, Berlin, February 8, 1901, quotes the following statistics from the Bulgarian Trade Journal:

The Bulgarian imports in the year 1901 reached a value of $13,518,506, or $4,576,411 more than in the preceding year. The export trade for the same period amounted to $17,325,563, an increase over that of 1900 of $5,555,997. The following table shows the increase of this trade with the principal countries:

Country.	Imports.	Exports.
Great Britain	$1,231,340	$1,906,840
Turkey	1,100,100	1,239,060
Austria-Hungary	882,010	293,360
Germany	812,530	565,490
Italy	285,640	337,750
France	138,960	.....
Belgium	.....	845,340

The increase in the import trade was chiefly in the following articles:

Textiles	$2,354,600
Leather, and manufactures of	432,320
Machinery and instruments	324,240
Oil, fat, and wax	308,800
Metals, and manufactures of	194,930
Railway cars, wagons, and ships	183,350
Chemical products	138,960
Vegetables	113,870
Stationery	106,150
Colonial goods	84,920

There was a remarkable increase in the export of maize, of $3,456,630; of oats, $426,530; of wheat, $328,100; of cows and calves, $285,640; of flour, $158,260; of eggs, $158,260; of raw tobacco, $150,540; of sheep and lambs, $123,520; of building wood, $65,620.

Trade of Bengal with Nepal and Tibet.—The Board of Trade Journal, London, January 30, 1902, publishes the following official statistics regarding the trade of the presidency of Bengal with each of the transfrontier countries—Nepal, Tibet, Sikkim, and Bhutan—in the fiscal years ended March 31, 1899, 1900, and 1901:

From and to—	Imports.			Exports.		
	1899.	1900.	1901.	1899.	1900.	1901.
Nepal	$4,679,037	$5,400,214	$5,257,372	$3,837,406	$3,734,446	$5,987,050
Tibet	363,210	373,930	241,111	329,730	340,946	237,205
Sikkim	184,240	184,558	136,592	137,044	125,384	82,797
Bhutan	34,265	40,083	89,543	47,646	47,825	56,272

The report states that the trade is insignificant except with Nepal, which has 92 per cent of the whole traffic. With Tibet, the Indian trade is of the slightest, owing to the aversion of the Tibetan authorities to the development of commerce with India and their selection of Yatung as a market. Up to the present, Tibet presents a practically closed door to the Indian trader. About half of the imports last year consisted of grain and pulse (largely rice), brought into India in response to the active demand which existed for food grains. The exports consist principally of cotton yarn and piece goods (European and Indian), metals, provisions, and salt.

Gold on the Ivory Coast.—According to the Dépêche Coloniale,* of Brussels, gold is as abundant in the Ivory Coast as in the neighboring British colony of the Gold Coast. The gold is found at a certain depth; a clayish soil is first met with, which sometimes contains gold, but only in small quantities. At an average depth of 13 feet (sometimes as much as 30), a species of white sand is found which is no other than pulverized quartz. This is the bed of the gold.

Up to the present, the gold has been extracted by natives alone, and their processes are most primitive. In one section, they dig a series of pits in each vein of the metal, varying from 60 to 90 feet in depth, and extract blocks of ore, which are pulverized to a fine powder by women. The lack of water during a part of the year necessitates two different methods of extracting the gold. During the dry season, the natives work the pits by the side of streams, wash the alluvial soil, and extract sufficient dust and nuggets to make the occupation remunerative. In the rainy season, gold is extracted entirely by the villagers. They dig deep pits, crush the quartz, and thus obtain the nuggets. By this process, all the gold dust is lost.

The value of gold exports from the Ivory Coast in 1895 was about $130,000; in 1896, $180,000; in 1897, $95,000; in 1898, $60,000; in 1899, $20,000; and in 1900, only about $5,000. For some years, European prospectors have examined certain parts of the country, but these explorations have not yet been followed by any serious attempt to work the metal with the machinery usually employed by European gold seekers.

Economic Development of Togoland.—La Quinzaine Coloniale, Paris, March 10, 1902, says:

Construction work on the wharf at Lome will soon be commenced. Work has been begun on the coast-line railway from Lome to Seguro and to Petit-Popo. The line from Lome to Atakpame is yet only a project; this, if built, would cross

*Quoted in the Board of Trade Journal, February 20, 1902.

a populous country, which is to-day the center of large plantations. To show the advantages of this road, the utility of the French line from Dakar to St. Louis is pointed out, thanks to which the production of earthnuts has increased from 10,000 tons in 1886 to 100,000 tons in 1899.

Experiments have been made to learn the best time for planting cotton. That planted in April is found to suffer from the heavy rains of August and September, but the July plantings succeed better. The committee intends next year to direct all the activity of the natives to the cultivation of cotton, and is taking steps to again establish American planters from Alabama in the different districts of the colony.

Essence and Perfume Trade in the Sudan.—The Nachrichten für Handel und Industrie, Berlin, March 5, 1902, has the following:

Fragrant essences and perfumes are important articles in the caravan trade from Morocco and Tripoli to the Sudan. Often a single caravan carries with it essences of this character to the value of $3,860. The yearly trade in these articles in the Sudan is valued at more than $772,000. These perfumes come principally from Germany and Bulgaria, and are sold by weight; the ingredients are musk, jasmine, geranium, sandalwood, peppermint, cinnamon, nutmeg, and cloves.

Coffee, Cacao, and Tea in the Kongo Free State.—De Indische Mercuur* says that the number of coffee trees in the Kongo Free State has increased from 61,517 in 1895 to 2,631,183 in 1901. In this number, the young trees (1,117,000) of the nurseries are not included. The number of cacao trees was 490,695 in 1901, against 13,867 in 1895. There are, besides, 132,000 young plants which have not been transplanted. The majority of the cacao plantations are not yet old enough to yield returns. Trials in tea culture have given good results.

Railway of Uganda.—The following details in regard to transportation facilities in Uganda appear in the Board of Trade Journal, London, February 20, 1902:

The railway line started from Mombasa in 1896 has now reached its terminus, 582 miles from the coast. The journey, which formerly required several months, can now be completed in forty-eight hours. Human porterage on the direct route is a thing of the past; the railway has revolutionized the cost of carriage. One of three steamers is already on the lake, another is on the way to Mombasa, and the third is approaching completion.

Roads suitable for wheeled traffic are now being made from the seat of administration at Entebbe, on the northwest shore of Lake Victoria, to Butiaba, on Lake Albert, and through the province of Buddu. The completion of the central road will render it possible for capitalists interested in the trade of the country to place an efficient steamer on Lake Albert, and thus facilitate communication with the valley of the Nile, along which there is a constantly increasing flow of communication with the Sudan.

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* Quoted in the Nachrichten für Handel und Industrie, Berlin, February 28, 1902.

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Full directions for binding the Consular Reports are given in No 131, page 663.

PUBLICATIONS OF THE BUREAU OF FOREIGN COMMERCE.*

The publications of the Bureau of Foreign Commerce, Department of State, are:

I.—COMMERCIAL RELATIONS, being the annual reports of consular officers on the commerce, industries, navigation, etc., of their districts.

II.—CONSULAR REPORTS, issued monthly, and containing miscellaneous reports from diplomatic and consular officers.

III.—ADVANCE SHEETS, CONSULAR REPORTS, issued daily, except Sundays and legal holidays, for the convenience of the newspaper press, commercial and manufacturing organizations, etc.

IV.—EXPORTS DECLARED FOR THE UNITED STATES, issued quarterly, and containing the declared values of exports from the various consular districts to the United States for the preceding three months. There is also issued an annual edition of Declared Exports, embracing the returns for the fiscal year.

V.—SPECIAL CONSULAR REPORTS, containing series of reports from consular officers on particular subjects, made in pursuance to instructions from the Department.

Following are the special publications issued by the Bureau prior to 1890:

Labor in Europe, 1878, one volume; Labor in Foreign Countries, 1884, three volumes; Commerce of the World and the Share of the United States Therein, 1879; Commerce of the World and the Share of the United States Therein, 1880–81; Declared Exports for the United States, First and Second Quarters, 1883; Declared Exports for the United States, Third and Fourth Quarters, 1883; Cholera in Europe in 1884, 1885; Trade Guilds of Europe, 1885; The Licorice Plant, 1885; Forestry in Europe, 1887; Emigration and Immigration, 1885–86 (a portion of this work was published as CONSULAR REPORTS No. 76, for the month of April, 1887); Rice Pounding in Europe, 1887; Sugar of Milk, 1887; Wool Scouring in Belgium, 1887; Cattle and Dairy Farming in Foreign Countries, 1888 (issued first in one volume, afterwards in two volumes); Technical Education in Europe, 1888; Tariffs of Central America and the British West Indies, 1890.

The editions of all these publications except Tariffs in Central America, etc., are exhausted and the Department is, therefore, unable to supply copies.

In 1890, the Department decided to publish reports on special subjects in separate form, to be entitled SPECIAL CONSULAR REPORTS. There are now the following SPECIAL CONSULAR REPORTS:

Vol. 1 (1890).—Cotton Textiles in Foreign Countries, Files in Spanish America, Carpet Manufacture in Foreign Countries, Malt and Beer in Spanish America, and Fruit Culture in Foreign Countries.

Vol. 2 (1890 and 1891).—Refrigerators and Food Preservation in Foreign Countries, European Emigration, Olive Culture in the Alpes Maritimes, and Beet-Sugar Industry and Flax Cultivation in Foreign Countries.

Vol. 3 (1891).—Streets and Highways in Foreign Countries. (New edition, 1897.)

Vol. 4 (1891).—Port Regulations in Foreign Countries.

Vol. 5 (1891).—Canals and Irrigation in Foreign Countries. (New edition, 1898.)

Vol. 6 (1891 and 1892).—Coal and Coal Consumption in Spanish America, Gas in Foreign Countries, and India Rubber.

Vol. 7 (1892).—The Stave Trade in Foreign Countries and Tariffs of Foreign Countries.

Vol. 8 (1892).—Fire and Building Regulations in Foreign Countries.

* Formerly Bureau of Statistics. Name changed to Bureau of Foreign Commerce by order of the Secretary of State, July 1, 1897.

Vol. 9 (1892 and 1893).—Australian Sheep and Wool and Vagrancy and Public Charities in Foreign Countries.

Vol. 10 (1894).—Lead and Zinc Mining in Foreign Countries and Extension of Markets for American Flour. (New edition, 1897.)

Vol. 11 (1894).—American Lumber in Foreign Markets. (New edition, 1897.)

Vol. 12 (1895).—Highways of Commerce. (New edition, 1899.)

Vol. 13 (1896 and 1897).—Money and Prices in Foreign Countries.

Vol. 14 (1898).—The Drug Trade in Foreign Countries.

Vol. 15 (1898).—Part I. Soap Trade in Foreign Countries; Screws, Nuts, and Bolts in Foreign Countries; Argols in Europe, Rabbits and Rabbit Furs in Europe, and Cultivation of Ramie in Foreign Countries. Part II. Sericulture and Silk Reeling and Cultivation of the English Walnut.

Vol. 16 (1899).—Tariffs of Foreign Countries. Part I. Europe. Part II. America. Part III. Asia, Africa, Australasia, and Polynesia. Supplement (1900). Tariffs of Chile and Nicaragua.

Vol. 17 (1899).—Disposal of Sewage and Garbage in Foreign Countries; Foreign Trade in Coal Tar and By-Products.

Vol. 18 (1900).—Merchant Marine of Foreign Countries.

Vol. 19 (1900).—Paper in Foreign Countries; Uses of Wood Pulp.

Vol. 20 (1900).—Part I. Book Cloth in Foreign Countries, Market for Ready-Made Clothing in Latin America, Foreign Imports of American Tobacco, and Cigar and Cigarette Industry in Latin America. Part II. School Gardens in Europe. Part III. The Stave Trade in Foreign Countries.

Vol. 21 (1900).—Part I. Foreign Markets for American Coal. Part II. Vehicle Industry in Europe. Part III. Trusts and Trade Combinations in Europe.

Vol. 22 (1900 and 1901). -Part I. Acetic Acid in Foreign Countries. Part II. Mineral-Water Industry. Part III. Foreign Trade in Heating and Cooking Stoves.

Vol. 23 (1901).—Part I. Gas and Oil Engines in Foreign Countries.

Of these SPECIAL CONSULAR REPORTS, Australian Sheep and Wool, Cotton Textiles in Foreign Countries, Files in Spanish America, Fire and Building Regulations, Fruit Culture, Gas in Foreign Countries, India Rubber, Lead and Zinc Mining, Malt and Beer in Spanish America, Port Regulations, Refrigerators and Food Preservation; Sericulture, etc.; Vagrancy, etc., are exhausted, and no copies can be supplied by the Department.

There was also published, in 1899, Proclamations and Decrees during the War with Spain, comprising neutrality circulars issued by foreign countries, proclamations by the President, orders of the War and Navy Departments, and war decrees of Spain.

Of the monthly CONSULAR REPORTS, many numbers are exhausted or so reduced that the Department is unable to accede to requests for copies. Of the publications of the Bureau available for distribution, copies are mailed to applicants without charge. In view of the scarcity of certain numbers, the Bureau will be grateful for the return of any copies of the monthly or special reports which recipients do not care to retain. Upon notification of willingness to return such copies, the Department will forward franking labels to be used in lieu of postage in the United States, Canada, the Hawaiian Islands, Porto Rico, and Mexico.

Persons receiving CONSULAR REPORTS regularly, who change their addresses, should give the old as well as the new address in notifying the Bureau of the fact.

In order to prevent confusion with other Department bureaus, all communications relating to consular reports should be carefully addressed, "Chief, Bureau of Foreign Commerce, Department of State, Washington, U. S. A."

VALUES OF FOREIGN COINS AND CURRENCIES.

The following statements show the valuation of foreign coins, as given by the Director of the United States Mint and published by the Secretary of the Treasury, in compliance with the first section of the act of March 3, 1873, viz: "That the value of foreign coins, as expressed in the money of account of the United States, shall be that of the pure metal of such coin of standard value," and that "the value of the standard coins in circulation of the various nations of the world shall be estimated annually by the Director of the Mint, and be proclaimed on the 1st day of January by the Secretary of the Treasury."

In compliance with the foregoing provisions of law, annual statements were issued by the Treasury Department, beginning with that issued on January 1, 1874, and ending with that issued on January 1, 1890. Since that date, in compliance with the act of October 1, 1890, these valuation statements have been issued quarterly, beginning with the statement issued on January 1, 1891.

The fact that the market exchange value of foreign coins differs in many instances from that given by the United States Treasury has been repeatedly called to the attention of the Bureau of Foreign Commerce. An explanation of the basis of the quarterly valuations was asked from the United States Director of the Mint, and under date of February 7, 1898, Mr. R. E. Preston made the following statement:

"When a country has the single gold standard, the value of its standard coins is estimated to be that of the number of grains fine of gold in them, 480 grains being reckoned equivalent to $20.67 in United States gold, and a smaller number of grains in proportion. When a country has the double standard, but keeps its full legal-tender silver coins at par with gold, the coins of both gold and silver are calculated on the basis of the gold value.

"The value of the standard coins of countries with the single silver standard is calculated to be that of the average market value of the pure metal they contained during the three months preceding the date of the proclamation of their value in United States gold by the Secretary of the Treasury. The value of the gold coins of silver-standard countries is calculated at that of the pure gold they contain, just as if they had the single gold standard.

"These valuations are used in estimating the values of all foreign merchandise exported to the United States."

The following statements, running from January 1, 1874, to April 1, 1902, have been prepared to assist in computing the values in American money of the trade, prices, values, wages, etc., of and in foreign countries, as given in consular and other reports. The series of years are given so that computations may be made for each year in the proper money values of such year. In hurried computations, the reductions of foreign currencies into American currency, no matter for how many years, are too often made on the bases of latest valuations. All computations of values, trade, wages, prices, etc., of and in the "fluctuating-currency countries" should be made in the values of their currencies in each year up to and including 1898, and in the quarterly valuations thereafter.

To meet typographical requirements, the quotations for the years 1875–1877, 1879–1882, 1884–1887, 1895, and 1897 are omitted, these years being selected as showing the least fluctuations when compared with years immediately preceding and following.

To save unnecessary repetition, the estimates of valuations are divided into three classes, viz: (A) countries with fixed currencies, (B) countries with fluctuating currencies, and (C) quarterly valuations of fluctuating currencies.

A.—*Countries with fixed currencies.*

The following official (United States Treasury) valuations of foreign coins do not include "rates of exchange."

Countries.	Standard.	Monetary unit.	Value in U.S.gold.	Coins.
Argentine Republic..	Gold and silver..	Peso.....	$0.96,5	Gold—argentine ($4.82,4) and ½ argentine; silver—peso and divisions.
Austria-Hungary*.....	Gold	Crown.....	.20,3	Gold—20 crowns ($4.05,2) and 10 crowns.
Belgium.....	Gold and silver..	Franc	.19,3	Gold—10 and 20 franc pieces; silver—5 francs.
Brazil	Gold	Milreis	.54,6	Gold—5, 10, and 20 milreis; silver—½, 1, and 2 milreis.
British North America (except Newfoundland).	.....do	Dollar.....	1.00	
British Honduras.....	.....do	.....do	1.00	
Chile.....	.....do	Peso.....	.36,5	Gold—escudo ($1.25), doubloon ($3.65), and condor ($7.30); silver—peso and divisions.
Costa Rica.....	.....do	Colon.....	.46,5	Gold—2, 5, 10, and 20 colons; silver—5, 10, 25, and 50 centisimos.
Cuba	Gold and silver..	Peso.....	.92,6	Gold—doubloon ($5.01,7); silver—peso (60 cents).
Denmark	Gold	Crown.....	.26,8	Gold—10 and 20 crowns.
Ecuador†	.....do	Sucre.....	.48,7	Gold—10 sucres ($4.8665); silver—sucre and divisions.
Egypt.....	.....do	Pound (100 piasters).	4.94,3	Gold—10, 20, 50, and 100 piasters; silver—1, 2, 10, and 20 piasters.
Finland	.....do	Mark.....	.19,3	Gold—10 and 20 marks ($1.93 and $3.85,9).
France	Gold and silver..	Franc	.19,3	Gold—5, 10, 20, 50, and 100 francs; silver—5 francs.
Germany	Gold	Mark.....	.23,8	Gold—5, 10, and 20 marks.
Great Britain.....	.....do	Pound sterling.	4.86,6½	Gold—sovereign (pound sterling) and half sovereign.
Greece	Gold and silver..	Drachma.....	.19,3	Gold—5, 10, 20, 50, and 100 drachmas; silver—5 drachmas.
Haiti	.....do	Gourde.....	.96,5	Silver—gourde.
India‡.....	Gold	Rupee	.32,4	Gold—sovereign ($4.8665); silver—rupee and divisions.
Italy	Gold and silver..	Lira	.19,3	Gold—5, 10, 20, 50, and 100 lire; silver—5 lire.
Japan §.....	Gold	Yen	.49,8	Gold—1, 2, 5, 10, and 20 yen.
Liberia	.....do	Dollar.....	1.00	
Netherlands.....	Gold and silver..	Florin	.40,2	Gold—10 florins; silver—½, 1, and 2½ florins.
Newfoundland	Gold	Dollar.....	1.01,4	Gold—$2 ($2.02,7).
Peru‖.....	.....do	Sol	.48,7	Gold—libra ($4.8665); silver—sol and divisions.
Portugal	.....do	Milreis	1.08	Gold—1, 2, 5, and 10 milreis.
Russia ¶.....	.....do	Ruble	.51,5	Gold—imperial ($7.718) and ½ imperial ($3.80); silver—¼, ½, and 1 ruble.
Spain.....	Gold and silver..	Peseta.....	.19,3	Gold—25 pesetas; silver—5 pesetas.
Sweden and Norway.	Gold	Crown.....	.26,8	Gold—10 and 20 crowns.
Switzerland	Gold and silver..	Franc	.19,3	Gold—5, 10, 20, 50, and 100 francs; silver—5 francs.
Turkey	Gold	Piaster	.04,4	Gold—25, 50, 100, 200, and 500 piasters.
Uruguay	.....do	Peso.....	1.03,4	Gold—peso; silver—peso and divisions.
Venezuela.....	Gold and silver..	Bolivar.....	.19,3	Gold—5, 10, 20, 50, and 100 bolivars; silver—5 bolivars.

*The gold standard went into effect January 1, 1900 (see Commercial Relations, 1899, Vol. II, p. 7). Values are still sometimes expressed in the florin, which is worth 2 crowns.

† Gold standard adopted in November, 1900. (See Consular Reports No. 225, June, 1899.)

‡ For an account of the adoption of the gold standard, see Consular Reports No. 238, p. 359

§ Gold standard adopted October 1, 1897. (See Consular Reports No. 201, p. 259.)

‖ Gold standard adopted October 13, 1900.

¶ For an account of the adoption of the gold standard, see Review of the World's Commerce, 1896–97, p. 254.

B.—*Countries with fluctuating currencies, 1874–1898.*

Countries.	Standard.	Monetary unit.	Value in terms of the United States gold dollar on January 1—					
			1874.	1878.	1883.	1888.	1889.	1890.
Austria-Hungary*.	Silver	Florin	$0.47,6	$0.45,3	$0.40,1	$0.34,5	$0.33,6	$0.42
Bolivia	do	Dollar until 1880; boliviano thereafter.	.96,5	.96,5	.81,2	.69,9	.68	.85
Central America	do	Peso	.96,5	.91,8		.69,9	.68	.85
China	do	Haikwan tael	1.61					
Colombia	do	Peso	.96,5	.96,5	.81,2	.69,9	.68	.85
Ecuador	do	do	.96,5	.91,8	.81,2	.69,9	.68	.85
Egypt†	Gold	Pound (100 piasters).		4.97,4	4.90	4.94,3		
India	Silver	Rupee	.45,8	.43,6	.38,6	.32,2	.32,3	.40,4
Japan	Gold	Yen	.90,7	.99,7		.99,7	.99,7	.99,7
	Silver				.87,6	.75,3	.73,4	.91,7
Mexico	do	Dollar	1.04,7½	.99,8	.88,2	.75,9	.73,9	.92,3
Netherlands‡	Gold and Silver.	Florin	.40,5	.38,5				
Peru	Silver	Sol	.92,5	.91,8	.81,2	.69,9	.68	.85
Russia	do	Ruble	.77,17	.73,4	.65	.55,9	.54,4	.68
Tripoli	do	Mahbub of 20 piasters.	.87,09	.82,9	.73,3	.63	.61,4	.76,7

Countries.	Standard.	Monetary unit.	Value in terms of the United States gold dollar on January 1—					
			1891.	1892.	1893.	1894.	1896.	1898.
Austria-Hungary*.	Silver	Florin	$0.38,1	$0.34,1				
Bolivia	do	Boliviano	.77,1	.69,1	$0.61,3	$0.51,6	$0.49,1	$0.42,4
Central America	do	Peso	.77,1	.69,1	.61,3	.51,6	.49,1	.41,4
Colombia	do	do	.77,1	.69,1	.61,3	.51,6	.49,1	.42,4
Ecuador	do	do	.77,1	.69,1	.61,3	.51,6	.49,1	.42,4
India	do	Rupee	.36,6	.32,8	.29,2	.24,5	.23,3	.20,1
Japan§	do	Yen	.83,1	.74,5	.66,1	.55,6	.52,9	
Mexico	do	Dollar	.83,7	.75	.66,6	.56	.53,3	.46
Peru	do	Sol	.77,1	.69,1	.61,3	.51,6	.49,1	.42,4
Russia§	do	Ruble	.61,7	.55,3	.49,1	.41,3	.39,3	
Tripoli	do	Mahbub of 20 piasters.	.69,5	.62.3	.55,3	.46,5	.44,3	

* The silver standard prevailed in Austria-Hungary up to 1892. The law of August 2 of that year (see CONSULAR REPORTS No. 147, p. 623) established the gold standard.

† The Egyptian pound became fixed in value at $4.94,3 in 1887.

‡ The Netherlands florin fluctuated up to the year 1880, when it became fixed at 40.2 cents.

§ See footnote, table of fixed currencies.

C.—*Quarterly valuations of fluctuating currencies.*

Countries.	Monetary unit.	1899.				1900.			
		Jan. 1.	April 1.	July 1.	Oct. 1.	Jan. 1.	April 1.	July 1.	Oct. 1.
Bolivia	Silver boliviano.	$0.43,9	$0.43,4	$0.44,3	$0.43,6	$0.42,7	$0.43,6	$0.43,8	$0.45,1
Central America.	Silver peso	.43,9	.43,4	.44,3	.43,6	.42,7	.43,6	.43,8	.45,1
China	Amoy tael	.71	.70,2	.71,6	.70,5	.69,1	.70,5	.70,9	.72,9
	Canton tael	.70,8	.70	.71,4	.70,3	.68,9	.70,3	.70,7	.72,7
	Chefoo tael	.67,9	.67,2	.68,4	.67,4	.66,1	.67,4	.67,8	.69,7
	Chinkiang tael	.69,3	.68,6	.69,9	.68,9	.67,5	.68,8	.69,3	.71,2
	Fuchau tael	.65,6	.65	.66,2	.65,2	.64	.65,2	.65,6	.67,4
	Haikwan tael	.72,2	.71,4	.72,8	.71,8	.70,3	.71,7	.72,1	.74,2
	Hankau tael	.66,4	.65,7	.67	.66	.64,7	.65,9	.66,3	.68,2
	Hongkong tael	(*)	(*)	(*)	(*)	(*)	(*)	(*)	(*)
	Ningpo tael	.68,2	.67,5	.68,8	.67,8	.66,5	.67,7	.68,2	.70,1
	Niuchwang tael	.66,5	.65,9	.67,1	.66,1	.64,8	.66,1	.66,5	.68,4
	Shanghai tael	.64,8	.64,1	.65,4	.64,4	.63,1	.64,4	.64,8	.66,6
	Swatow tael	.65,5	.64,9	.66,1	.65,1	.63,9	.65,1	.65,5	.67,4
	Takao tael	.71,4	.70,7	.72	.71	.69,6	.70,9	.71,4	.73,4
	Tientsin tael	.68,8	.68	.69,4	.68,3	.67	.68,3	.68,7	.70,7
Colombia	Silver peso	.43,9	.43,4	.44,3	.43,6	.42,7	.43,6	.43,8	.45,1
Ecuador †	...do	.43,9	.43,4	.44,3	.43,6	.....	.....	.....	.....
India	Silver rupee‡	.20,8	.20,6	.21	.20,7	.20,3	.20,7	.20,8	.....
Mexico	Silver dollar	.47,7	.47,2	.48,1	.47,4	.46,4	.47,3	.47,6	.49
Persia	Silver kran	.08,1	.08	.08,2	.08	.07,9	.08	.08,1	.08,3
Peru †	Silver sol	.43,9	.43,4	.44,3	.43,6	.42,7	.43,6	.43,8	.48,7

Countries.	Monetary unit.	1901.				1902.	
		Jan. 1.	April 1.	July 1.	Oct. 1.	Jan. 1.	April 1.
Bolivia	Silver boliviano.	$0.46,8	$0.45,1	$0.43,6	$0.42,8	$0.41,3	$0.40,3
Central America	Silver peso	.46,5	.45,1	.43,6	.42,8	.41,3	.40,3
China	Amoy tael	.75,7	.72,9	.70,5	.69,1	.66,9	.65,1
	Canton tael	.75,5	.72,7	.70,3	.68,9	.66,7	.64,9
	Chefoo tael	.72,4	.69,7	.67,4	.66,1	.63,9	.62,3
	Chinkiang tael	.74	.71,2	.68,8	.67,5	.65,3	.63,6
	Fuchau tael	.70,1	.67,5	.65,2	.64	.61,8	.60,2
	Haikwan tael	.77,1	.74,2	.71,7	.70,4	.68	.66,3
	Hankau tael	.70,9	.68,2	.65,9	.64,7	.62,6	.60,9
	Hongkong tael	(*)	(*)	(*)	(*)	(*)	(*)
	Ningpo tael	.72,8	.70,1	.67,8	.66,5	.64,3	.62,6
	Niuchwang tael	.71	.68,4	.66,1	.64,8	.62,7	.61,1
	Shanghai tael	.69,2	.66,6	.64,4	.63,2	.61,1	.59,5
	Swatow tael	.70	.67,4	.65,1	.63,9	.61,8	.60,2
	Takao tael	.76,2	.73,4	.70,9	.69,6	.67,3	.65,5
	Tientsin tael	.73,4	.70,7	.68,3	.67	.64,8	.63,1
Colombia	Silver peso	.46,8	.45,1	.43,6	.42,8	.41,3	.40,3
Mexico	Silver dollar	.50,9	.49	.49	.46,4	.44,9	.43,7
Persia	Silver kran	.08,6	.08,3	.08,3	.07,9	.07,6	.07,4

*The "British dollar" has the same legal value as the Mexican dollar in Hongkong, the Straits Settlements, and Labuan.

†See footnote, table of fixed currencies.

‡The sovereign is the standard coin of India, but the rupee is the money of account. See also table of fixed currencies.

FOREIGN WEIGHTS AND MEASURES.

The following table embraces only such weights and measures as are given from time to time in CONSULAR REPORTS and in Commercial Relations:

Foreign weights and measures, with American equivalents.

Denominations.	Where used.	American equivalents.
Almude	Portugal	4.422 gallons.
Ardeb	Egypt	7.6907 bushels.
Are	Metric	0.02471 acre.
Arobe	Paraguay	25 pounds.
Arratel or libra	Portugal	1.011 pounds.
Arroba (dry)	Argentine Republic	25.3175 pounds.
Do	Brazil	32.38 pounds.
Do	Cuba	25.3664 pounds.
Do	Portugal	32.38 pounds.
Do	Spain	25.36 pounds.
Do	Venezuela	25.4024 pounds.
Arroba (liquid)	Cuba, Spain, and Venezuela	4.263 gallons.
Arshine	Russia	28 inches.
Arshine (square)	do	5.44 square feet.
Artel	Morocco	1.12 pounds.
Baril	Argentine Republic and Mexico	20.0787 gallons.
Barrel	Malta (customs)	11.4 gallons.
Do	Spain (raisins)	100 pounds.
Berkovets	Russia	361.12 pounds.
Bongkal	India	832 grains.
Bouw	Sumatra	7,096.5 square meters.
Bu	Japan	0.1 inch.
Butt (wine)	Spain	140 gallons.
Caffiso	Malta	5.4 gallons.
Candy	India (Bombay)	529 pounds.
Do	India (Madras)	500 pounds.
Cantar	Morocco	113 pounds.
Do	Syria (Damascus)	575 pounds.
Do	Turkey	124.7036 pounds.
Cantaro (cantar)	Malta	175 pounds.
Carga	Mexico and Salvador	300 pounds.
Catty	China	1.333⅓ (1⅓) pounds.
Do*	Japan	1.31 pounds.
Do	Java, Siam, and Malacca	1.35 pounds.
Do	Sumatra	2.12 pounds.
Centaro	Central America	4.2631 gallons.
Centner	Bremen and Brunswick	117.5 pounds.
Do	Darmstadt	110.24 pounds.
Do	Denmark and Norway	110.11 pounds.
Do	Nuremberg	112.43 pounds.
Do	Prussia	113.44 pounds.
Do	Sweden	93.7 pounds.
Do	Vienna	123.5 pounds.
Do	Zollverein	110.24 pounds.
Do	Double or metric	220.46 pounds.
Chetvert	Russia	5.7748 bushels.
Chih	China	14 inches.

*More frequently called "kin." Among merchants in the treaty ports it equals 1.33⅓ pounds avoirdupois.

Foreign weights and measures, with American equivalents—Continued.

Denominations.	Where used.	American equivalents.
Coyan	Sarawak	3,098 pounds.
Do	Siam (Koyan)	2,667 pounds.
Cuadra	Argentine Republic	4.2 acres.
Do	Paraguay	78.9 yards.
Do	Paraguay (square)	8.077 square feet.
Do	Uruguay	Nearly 2 acres.
Cubic meter	Metric	35.3 cubic feet.
Cwt. (hundredweight)	British	112 pounds.
Dessiatine	Russia	2.6997 acres.
Do	Spain	1.599 bushels.
Drachme	Greece	Half ounce.
Egyptian weights and measures	(*See* CONSULAR REPORTS No. 144.)	
Fanega (dry)	Central America	1.5745 bushels.
Do	Chile	2.575 bushels.
Do	Cuba	1.599 bushels.
Do	Mexico	1.54728 bushels.
Do	Morocco	Strike fanega, 70 lbs.; full fanega, 118 lbs.
Do	Uruguay (double)	7.776 bushels.
Do	Uruguay (single)	3.888 bushels.
Do	Venezuela	1.599 bushels.
Fanega (liquid)	Spain	16 gallons.
Feddan	Egypt	1.03 acres.
Frail (raisins)	Spain	50 pounds.
Frasco	Argentine Republic	2.5096 quarts.
Do	Mexico	2.5 quarts.
Frasila	Zanzibar	35 pounds.
Fuder	Luxemburg	264.17 gallons.
Funt	Russia	0.9028 pound.
Garnice	Russian Poland	0.88 gallon.
Gram	Metric	15.432 grains.
Hectare	do	2.471 acres.
Hectoliter:		
Dry	do	2.838 bushels.
Liquid	do	26.417 gallons.
Joch	Austria-Hungary	1.422 acres.
Ken	Japan	6 feet.
Kilogram (kilo)	Metric	2.2046 pounds.
Kilometer	do	0.621376 mile.
Klafter	Russia	216 cubic feet.
Koku	Japan	4.9629 bushels.
Korree	Russia	3.5 bushels.
Kwan	Japan	8.28 pounds.
Last	Belgium and Holland	85.134 bushels.
Do	England (dry malt)	82.52 bushels.
Do	Germany	2 metric tons (4,480 pounds).
Do	Prussia	112.29 bushels.
Do	Russian Poland	113⅜ bushels.
Do	Spain (salt)	4,760 pounds.
League (land)	Paraguay	4,633 acres.
Li	China	2,115 feet.
Libra (pound)	Argentine Republic	1.0127 pounds.
Do	Central America	1.043 pounds.
Do	Chile	1.014 pounds.
Do	Cuba	1.0161 pounds.
Do	Mexico	1.01465 pounds.
Do	Peru	1.0143 pounds.
Do	Portugal	1.011 pounds.
Do	Spain	1.0144 pounds.
Do	Uruguay	1.0143 pounds.
Do	Venezuela	1.0161 pounds.

Foreign weights and measures, with American equivalents—Continued.

Denominations.	Where used.	American equivalents.
Liter	Metric	1.0567 quarts.
Livre (pound)	Greece	1.1 pounds.
Do	Guiana	1.0791 pounds.
Load	England (timber)	Square, 50 cubic feet; unhewn, 40 cubic feet; inch planks, 600 superficial feet.
Manzana	Costa Rica	1⅘ acres.
Do	Nicaragua and Salvador	1.727 acres.
Marc	Bolivia	0.507 pound.
Maund	India	82⅔ pounds.
Meter	Metric	39.37 inches.
Mil	Denmark	4.68 miles.
Do	Denmark (geographical)	4.61 miles.
Milla	Nicaragua and Honduras	1.1493 miles.
Morgen	Prussia	0.63 acre.
Oke	Egypt	2.7225 pounds.
Do	Greece	2.84 pounds.
Do	Hungary	3.0817 pounds.
Do	Turkey	2.82838 pounds.
Do	Hungary and Wallachia	2.5 pints.
Pic	Egypt	21¼ inches.
Picul	Borneo and Celebes	135.64 pounds.
Do	China, Japan, and Sumatra	133⅓ pounds.
Do	Java	135.1 pounds.
Do	Philippine Islands	137.9 pounds.
Pie	Argentine Republic	0.9478 foot.
Do	Spain	0.91407 foot.
Pik	Turkey	27.9 inches.
Pood	Russia	36.112 pounds.
Pund (pound)	Denmark and Sweden	1.102 pounds.
Quarter	Great Britain	8.252 bushels.
Do	London (coal)	36 bushels.
Quintal	Argentine Republic	101.42 pounds.
Do	Brazil	130.06 pounds.
Do	Castile,* Chile, Mexico, and Peru	101.41 pounds.
Do	Greece	123.2 pounds.
Do	Newfoundland (fish)	112 pounds.
Do	Paraguay	100 pounds.
Do	Syria	125 pounds.
Do	Metric	220.46 pounds.
Rottle	Palestine	6 pounds.
Do	Syria	5¾ pounds.
Sagene	Russia	7 feet.
Salm	Malta	490 pounds.
Se	Japan	0.02451 acres.
Seer	India	1 pound 13 ounces.
Shaku	Japan	11.9305 inches.
Sho	do	1.6 quarts.
Standard (St. Petersburg)	Lumber measure	165 cubic feet.
Stone	British	14 pounds.
Suerte	Uruguay	2,700 cuadras (see cuadra).
Sun	Japan	1.193 inches.
Tael	Cochin China	590.75 grains (troy).
Tan	Japan	0.25 acre.
To	do	2 pecks.
Ton	Space measure	40 cubic feet.
Tonde (cereals)	Denmark	3.94783 bushels.
Tondeland	do	1.36 acres.

*Although the metric weights are used officially in Spain, the Castile quintal is employed in commerce in the Peninsula and colonies, save in Catalonia; the Catalan quintal equals 91.71 pounds.

Foreign weights and measures, with American equivalents—Continued.

Denominations.	Where used.	American equivalents.
Tsubo	Japan	6 feet square.
Tsun	China	1.41 inches.
Tunna	Sweden	4.5 bushels.
Tunnland	Sweden	1.22 acres.
Vara	Argentine Republic	34.1208 inches.
Do	Central America	32.87 inches.
Do	Chile and Peru	33.367 inches.
Do	Cuba	33.384 inches.
Do	Curaçao	33.375 inches.
Do	Mexico	33 inches.
Do	Paraguay	34 inches.
Do	Spain	0.914117 yard.
Do	Venezuela	33.384 inches.
Vedro	Russia	2.707 gallons.
Vergees	Isle of Jersey	71.1 square rods.
Verst	Russia	0.663 mile.
Vlocka	Russian Poland	41.98 acres.

METRIC WEIGHTS AND MEASURES.

Metric weights.

Milligram ($\frac{1}{1000}$ gram) equals 0.0154 grain.
Centigram ($\frac{1}{100}$ gram) equals 0.1543 grain.
Decigram ($\frac{1}{10}$ gram) equals 1.5432 grains.
Gram equals 15.432 grains.
Decagram (10 grams) equals 0.3527 ounce.
Hectogram (100 grams) equals 3.5274 ounces.
Kilogram (1,000 grams) equals 2.2046 pounds.
Myriagram (10,000 grams) equals 22.046 pounds.
Quintal (100,000 grams) equals 220.46 pounds.
Millier or tonnea—ton (1,000,000 grams) equals 2,204.6 pounds.

Metric dry measures.

Milliliter ($\frac{1}{1000}$ liter) equals 0.061 cubic inch.
Centiliter ($\frac{1}{100}$ liter) equals 0.6102 cubic inch.
Deciliter ($\frac{1}{10}$ liter) equals 6.1022 cubic inches
Liter equals 0.908 quart.
Decaliter (10 liters) equals 9.08 quarts.
Hectoliter (100 liters) equals 2.838 bushels.
Kiloliter (1,000 liters) equals 1.308 cubic yards.

Metric liquid measures.

Milliliter ($\frac{1}{1000}$ liter) equals 0.0388 fluid ounce.
Centiliter ($\frac{1}{100}$ liter) equals 0.338 fluid ounce.
Deciliter ($\frac{1}{10}$ liter) equals 0.845 gill.
Liter equals 1.0567 quarts.
Decaliter (10 liters) equals 2.6418 gallons.
Hectoliter (100 liters) equals 26.417 gallons.
Kiloliter (1,000 liters) equals 264.18 gallons.

Metric measures of length.

Millimeter ($\frac{1}{1000}$ meter) equals 0.0394 inch.
Centimeter ($\frac{1}{100}$ meter) equals 0.3937 inch.
Decimeter ($\frac{1}{10}$ meter) equals 3.937 inches.

Meter equals 39.37 inches.
Decameter (10 meters) equals 393.7 inches.
Hectometer (100 meters) equals 328 feet 1 inch.
Kilometer (1,000 meters) equals 0.62137 mile (3,280 feet 10 inches).
Myriameter (10,000 meters) equals 6.2137 miles.

Metric surface measures.

Centare (1 square meter) equals 1,550 square inches.
Are (100 square meters) equals 119.6 square yards.
Hectare (10,000 square meters) equals 2.471 acre.

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THE RUSSIAN PETROLEUM TRADE.

PRODUCTION OF CRUDE OIL OF THE BAKU FIELDS.

As was to be expected, the usual increase in the crude production of the Baku fields occurred in 1901. The statistics show that the increase in the gross production over 1900 was nearly 25,000 barrels per day, and that the increase in the net production—*i. e.*, the gross production less amount lost and used for fuel at wells and pipe-line stations—was about 21,500 barrels per day; and that this increase occurred with the completion of only 358 wells in the year, while in 1900, with the completion of nearly 100 more wells, the increase in the production was only about 2,000 barrels more. But the newer Government lands produced much more oil last year than in 1900—in fact, considerably more than the total increase came from those lands.

In the report from this consulate last year,* it was stated that no accurate statistics for the production of the Government lands were obtainable. Since then, however, such statistics are given monthly by the publication of the trade association, from which I find that the average daily production from that territory in 1900 was only about 6,000 barrels from the Bibi-Eibat district and from the other districts 37,000 barrels, making the total 43,000 barrels per day. In the past year, the production from this territory in the Bibi-Eibat district was over 24,000 barrels per day and in the other districts

*ADVANCE SHEETS No. 1002; CONSULAR REPORTS No. 248 (May, 1901).

43,000 barrels per day, making a total of 67,000 barrels per day. As the total production in 1901 was a trifle under 222,000 barrels per day, it can be seen that had this territory not been put on the market the trade might now be in a very prosperous instead of a very depressed condition, as with a daily production of 200,000 barrels in 1900 the year closed with very profitable prices for all products, prices which now seem fabulous.

Of course, it is not meant that had these Government lands not been drilled the daily production in 1901 would have been 67,000 barrels less, because the prevailing high prices of 1900 would naturally have induced much drilling; but the territory drilled would have been in the partly drained portions of the fields, and the results would have been nothing like as good as those from the newer territory, some of which, particularly that in the Bibi-Eibat district, was practically virgin territory.

An analysis of the results obtained by drilling in 1901 show that with 603 wells drilling at the beginning of the year and 282 wells started during the year, there were only 358 wells completed, while with 579 wells drilling at the beginning of 1900 and 473 wells started during the year, 448 wells were finished, the depth of which averaged 999 feet and the initial production of which was 304 barrels per day per well, while the depth of the 358 wells completed in 1901 averaged 1,086 feet and the initial production was 330 barrels per day per well. Both the depth and initial production of the wells in all districts increased, but the increase in production of the wells is more than accounted for by the increased production from flowing wells, which was nearly 10,000 barrels per day. The increase in the flowing-well production was considerable in the newer Bibi-Eibat territory, but the greatest increase was in the older Balakhani-Sabunchi territory, which, apparently, is anything but an indication of the exhaustion of the territory.

The 358 wells completed in 1901 increased the gross production about 24,500 barrels per day, but they apparently did not materially increase the number of producing wells, as there were only 48 more wells classified as producing at the end of the year than at the close of the preceding year. This is, I think, misleading, as I believe that only wells actually being pumped or flowing are called producing wells, and there is no doubt that, owing to the great production from flowing wells the last two months of the year, many small wells were not pumped, and were, consequently, not counted as producing wells. It is always the case when there are wells flowing largely that many small wells are allowed to stand, as where a producer has an immense production from flowing wells it generally taxes his storage capacity to take care of it, and, consequently, he has no desire

to increase his production by the slower and more expensive process of pumping. Then, with the decreased prices, there are many wells which do not produce sufficient oil to make pumping them profitable. I think this explains the decrease in the production from pumping wells in the last four months of the year. The statistics annexed show that the production from pumping wells in the month of July was over 197,000 barrels per day, and that this class of production declined in volume from July on till the end of the year, reaching the lowest figure of the year in December—180,500 barrels per day. If all the wells which yield oil had been pumped, this decline in the production from pumping would be significant of decline in the productiveness of the territory, as, after all, the pumping production is the backbone of the business.

The average daily production per well seems to have been maintained in 1901, as it was exactly the same as in 1900, viz, 156 barrels. This, I think, is wholly attributable to the new territory, for there has been a steady falling off in the production of the wells since 1896 till last year, as from 226 barrels per day per well in 1896 it declined to 211 barrels in 1897, 198 barrels in 1898, 174 barrels in 1899, and 156 barrels in 1900 and 1901.

As anticipated in the report from this consulate last year, the increase in the depth of the wells drilled in 1901 was not as great as in the preceding year, having been 87 feet, against 100 feet in 1900. This, however, was a greater increase than I anticipated, because I expected that the drilling in the new territory would be much shallower than it actually was. In the Bibi-Eibat district, the best wells struck were deeper than the average in the older territory, the largest well being over 1,800 feet deep. This well was probably the largest producer the first two or three days that was ever struck, as it was accredited with 180,000 barrels per day, and I know no reason to doubt the correctness of that estimate.

In the first ten months of the year the production from flowing wells was not as great as for the same time in 1900, but early in November the well at Bibi-Eibat alluded to above was struck and continued flowing until it produced over 2,000,000 barrels. Before this well stopped flowing, another big one was struck in the Romani district, which produced nearly a million barrels in December and was still flowing about 25,000 barrels per day on January 31, which is the latest information I have concerning it. There were other wells flowing at the same time, but these two practically account for the whole increase in the flowing-well production.

I think it is sufficiently interesting to mention that it is generally believed that the owners of the big well which produced more than 2,000,000 barrels in a little more than thirty days lost money by it. Without explanation, this seems impossible. The fact is that the well

is on Government territory, leased at a fixed royalty of 5 kopecks (2.5 cents) per pood,* and the owners of the well realized very little above that figure for their production. They may have sold the oil at an average of 0.25 to 0.5 kopeck (0.12 to 0.25 cent) per pood above the royalty, but certainly not more than that. They were compelled to pay heavy damages to neighboring property owners and to owners of property in the village more than a mile away, as part of the time the well was flowing there was a high wind blowing which carried the oil over the village, and, it is said, the owners of the well must pay for repainting about all the houses in the village. One-fourth to one-half a kopeck per pood does not go far toward damages of this sort. I must add that this was not the first time the village mentioned was damaged by a flowing well, as some years ago a well was struck in the Bibi-Eibat field which acted in the same manner, the wind carrying a spray of oil to the outskirts of Baku, about 2½ miles, deluging the village, which lies between Bibi-Eibat and Baku. The newspapers stated at the time that the owner of the well had to pay damages amounting to $50,000, as he had to pay for repainting the entire village, including a fine Russian church.

As the big wells recently struck in the Texas oil fields have attracted so much attention, I think it well to give particulars as to depth, etc., of these large wells. The Bibi-Eibat well is 1,813 feet deep and is finished with 14-inch pipe, while the Romani well is 1,841 feet and finished with 11¼-inch pipe. Near the latter well there is another well flowing, belonging to the same owners, which produced nearly half a million barrels in December. Unfortunately, I am unable to give the dates upon which these wells commenced flowing.

The cost of producing oil in the Baku fields is almost as interesting as it is difficult to ascertain. The increased depth of drilling not only increases the first cost of the wells, but adds steadily and materially to the cost of raising the oil by pumping, because, as has previously been explained in these reports, pumping at Baku is not done as in the United States—by means of rods and working barrel—but the oil is baled out with what is known in the United States as the baler; but at Baku this instrument is, of course, much larger than is commonly used in the United States, as its diameter is as large as will run easily inside the pipe in the well, while its length is generally between 30 and 40 feet. Of course, the deeper the well the longer and, consequently, the fewer the runs of the baler. Then, cleaning out, deepening, and repairing wells is a big expense. The wells are generally long lived, but require much more expense to keep them in order than American wells as they cost more originally. They can not be pumped as steadily, and consequently there are fewer pumping days in the year. The statistics show that at

*36.112 pounds.

the close of 1901, while there were only 1,354 wells classed as producing, there were 1,003 wells doing nothing. All, or at least nearly all, of these 1,003 wells were at one time producers, and it is very probable that many of them could be worked now, but probably not at a profit; but they may all be made to produce when the price of crude advances sufficiently to justify it. Some of them may be abandoned, but the number of wells abandoned annually is insignificant. In calculating cost of production, however, the investment in many wells which are not producing must be taken into consideration along with the investment in those which are actually producing. But taking into account only those wells which were producing last year, the average of which for the year was 1,413, the average production per well for the year was about 477,000 poods (2,385,000 gallons). The average cost of wells at Baku is now conceded to be not less than 60,000 rubles (about $30,900). This will seem an impossible figure to American producers who have not followed the reports of this consulate for some years, or who know nothing about the drilling methods at Baku; but the explanation makes it seem a reasonable estimate. To start with, the Baku man's machinery and rig ready for drilling costs much more than the average American well completed; then comes the expense for pipe, which is insignificant in the United States. In the Baku fields, to get to a depth of 1,500 feet, they start with not less than a 26-inch hole, and in deeper territory with even larger holes, up to 32 inches in diameter. The pipe used is 0⅜-inch iron riveted, in 4-foot joints, which are joined by riveting. They drill ahead of the pipe and then drive it, and they continue driving the first pipe until it collapses or for some reason will go no farther; then they start another string of a diameter which will go inside the first, generally 2 inches less; and when this can be no longer driven, then another string inside it, and so on until they strike the oil. In deep wells, there is sometimes more than $10,000 worth of pipe. Then the cost of drilling (contract) is very great, as the contract is generally made at about $5 per foot up to 700 feet, the price increasing about 75 cents per foot for the next 70 feet, $1.50 for the next 70 feet, and so on till after 900 feet the price is about $7.50 per foot. Thus, a 1,500-foot well will cost nearly $10,000 for drilling. And when the oil is struck the well is by no means finished, for then comes the process which is called "exploitation," really meaning cleaning out the sand until the well commences flowing or yields nearly pure oil by pumping. This work lasts sometimes months, and generally not less than two or three months, and adds materially to the cost of the well.

Taking 60,000 rubles as the cost of a well, the interest upon that amount must be added to the cost of raising the oil, and taking the

rate of interest at 6 per cent per annum (the usual rate at Baku is not less than 12 per cent), makes that item 3,600 rubles ($1,854) per year. The cost of pumping is not excessive, the principal item being fuel, which, of course, is crude oil; but the repairs are expensive, and the two items may be conservatively estimated at between 5,000 and 6,000 rubles per annum—say 9,000 rubles ($4,635) for the total expense. Now, the Baku wells are not short lived; but it is reasonable that in such a speculative business the producer should expect to get his money back in four years, for it is not so very long ago that the American operator calculated that he should have his money back in from eighteen months to two years. But to get his money back in four years, the Baku producer must add 15,000 rubles ($7,725) per year to the cost of working expenses, making an annual income of about 24,000 rubles ($12,360) from each well necessary; consequently, with 477,000 poods as the average production per well per annum, as it was last year, the producer with average wells required about 5 kopecks per pood (2.5 cents per 36.112 pounds) to pay expenses, not including, however, the cost of land or royalty.

It is held by some well-informed people that the average cost of crude oil to the producer to-day is 4 kopecks (2.06 cents) per pood, exclusive of royalty, but I have never learned the manner in which they arrive at that estimate, and am of the opinion that with wells considerably above the average in productiveness producing oil at Baku at 4 kopecks per pood, exclusive of royalty, it is a very poor speculation. It may be that the results would be very handsome from a farming or manufacturing business, but they would certainly be anything but satisfactory from such a speculative business as producing oil.

The experiment of raising oil by means of compressed air, mentioned in my report last year, still remains an experiment. From the pioneers in this experiment, I gather that it proved unsatisfactory, but from others who have tried it I hear of good results. The principal objection to this method seems to be the fact that it takes the oil out of a well more rapidly than it comes in, and soon exhausts, or apparently exhausts, the well; but the advocates of the method claim that the exhaustion is only apparent, as the well will again yield oil after being allowed to stand awhile without pumping. But as the installation for the method costs from $8,000 to $10,000, and as with present low prices it is not at all desirable to get the oil out rapidly, there is little probability of the method being generally adopted. Some of the foreign companies, however, are equipping their wells in part with air compressors, which, I understand, are manufactured in the United States.

There has been no increase in the area of the territory in the

past year, but as the area of developed territory has never been accurately given in these reports, there will be found annexed a table giving the area in acres and showing the manner in which it is held by the operators, together with the amount of production of each class of lease in 1900 and the number and condition of wells on the leases at the close of that year. This information is obtained from the annual review of the business published by the association of the trade, which is one of the most remarkable and valuable publications to be found in connection with any business in any country, and has been of inestimable value to me for the compilation of reports on the trade.

The following figures, taken from the review above mentioned, will give some idea of the life of the Baku wells:

Year.	Average daily production of—					
	47 wells.	81 wells.	142 wells.	80 wells.	64 wells.	87 wells.
	*Bbls.**	*Bbls.**	*Bbls.**	*Bbls.**	*Bbls.**	*Bbls.**
1889	446	.....	.....	.....	.....	.....
1890	367	285	.....	.....	.....	.....
1891	204	267	348	.....	.....	.....
1892	105	167	224	376	.....	.....
1893	102	162	156	228	565	.....
1894	65	101	122	162	299	346
1895	37	81	102	144	151	286
1896	·50	64	87	105	104	198
1897	57	54	72	68	102	161
1898	30	41	54	64	96	108
1899	20	33	41	55	46	77
1900	16	25	28	45	30	70

Year.	Average daily production of—					
	80 wells.	135 wells.	212 wells.	259 wells.	353 wells.	402 wells.
	*Bbls.**	*Bbls.**	*Bbls.**	*Bbls.**	*Bbls.**	*Bbls.**
1895	719	.....	.....	.....	.....	.....
1896	218	306	.....	.....	.....	.....
1897	154	219	198	.....	.....	.....
1898	150	115	148	273	.....	.....
1899	120	102	79	163	197	.....
1900	100	73	54	102	116	193

* Barrels of 42 gallons.

The number of individuals, firms, and companies which had production in the Baku fields in 1901 was 154, and the amount of production of each ranged from 360 barrels, the smallest, to a trifle under 10,000,000 barrels, the largest. In addition to the number which had production at the end of the year, there were probably twenty more which were drilling, but had no production at that time.

SEARCHING FOR NEW TERRITORY.

There was practically nothing accomplished in 1901 in the hunt for new territory. Nothing new in that line was commenced in the vicinity of Baku, and the work which had been under way for some time previously was not prosecuted very energetically, so that there was absolutely nothing developed by it, unless it was the absence of oil. Of course, there were rumors of wells being struck in new territory, but they have so often, if not always, been delusive that one is compelled to believe that they are circulated simply to hold the unfortunate financial backers of the usually hopeless undertakings—the "get-rich-quick" people in Europe, who have never seen an oil well, and put their money into wild-cat undertakings upon the strength of remarkable prospectuses, which are backed by reports of experts who are usually paid proportionately to the favorableness of their reports to the territory to be boomed.

PRICES OF CRUDE OIL AT WELLS.

Annexed will be found figures for the average prices of all products at Baku for the last ten years in cents per barrel and gallon; but for the purpose of intelligent comparison, the prices of crude oil at wells in the past two years (monthly average) are here given as follows, per pood (36.112 pounds):

Month.	1900.		1901.	
	Kopecks.	*Cents.*	*Kopecks.*	*Cents.*
January	16.4	8.4	11.42	5.88
February	16.5	8.5	10.35	5.33
March	17.5	9	10.46	5.38
April	17.5	9	7.35	3.78
May	18.1	9.3	7.88	4.06
June	18	9.4	8.4	4.32
July	17	8.7	7.8	4.02
August	16.5	8.5	7.69	3.96
September	15	7.7	7.25	3.73
October	11.5	5.9	7.625	3.92
November	12.5	6.4	6.75	3.47
December	12	6.2	5.875	3.025
Year	15.25	7.85	8.25	4.248

Going a little further, it may be added that since January 1 the price has certainly not averaged more than 4½ kopecks (2.3 cents) per pood. Sales were made in January and again recently at 4¼ kopecks (2.18 cents) per pood at refineries, which is equivalent to 3¾ kopecks (1.93 cents) at Bibi-Eibat wells and 4 kopecks (2 cents) in the other districts, the Bibi-Eibat crude always being at least 0.25 kopeck lower than that in the other districts—first, because it is a

lighter oil than the others and consequently not quite so good for residuum or fuel oil, which is the staple of the trade; and, second, because there is no pipe-line transportation from that field to the refineries at Blacktown and Whitetown, the oil being carried to the refineries in barges on the Caspian Sea. The distance is not more than 3 miles, but the loading and discharging makes some difference in favor of pipe-line transportation.

DEPRESSION IN THE PRODUCING BUSINESS AND ITS CAUSES.

Having estimated that crude oil can be produced in the Baku fields at a cost free of royalty of 5 kopecks (2.5 cents) per pood, it would seem that with the average price for the past year over 8 kopecks (4.12 cents) per pood—unless the average royalty paid is more than 3 kopecks (1.5 cents) per pood—there can be no reason apparent for the great depression now existing at Baku.

The production from the Government territory in Bibi-Eibat district paid an average royalty of over 5 kopecks (2.5 cents) per pood, while the production from the Government territory in the other districts paid an average royalty of less than 2 kopecks (1 cent) per pood, and this production from the Government territory was not quite one-third of the whole. It is impossible to ascertain accurately the average royalty paid by the other two-thirds of the production, but as much of it paid not more than 0.5 kopeck (0.02 cent) per pood, and much more was produced by territory held in fee and bought years ago at very low prices, it is my impression that 0.5 kopeck (0.02 cent) per pood is a fair estimate for the royalty on the whole of the two-thirds, and that, consequently, the average royalty on the whole production of last year was not more than 1½ kopecks (0.077 cent) per pood. Adding this to the estimated cost of 5 kopecks (2.5 cents) per pood gives the cost of oil last year as 6½ kopecks (3.3 cents), including royalty, and leaves an average above that cost of 1¾ kopecks (0.9 cent) per pood for the year—not a great profit, certainly, but still a profit, and, consequently, apparently the trade should be in a healthy condition.

Unfortunately, however, the exceedingly profitable prices of the two immediately preceding years impressed the idea of permanency upon the trade, with the result that practically everybody engaged in the business of drilling—and many who had not yet engaged in the business—put into it not only all their available capital, but mortgaged the future by undertaking many times as much work as their capital warranted, and the inevitable result has ensued upon the approach of lower prices. The greed of the operators has defeated its object, as it has increased the production to a figure considerably beyond the demand, with the result that producers

whose financial resources have reached the limit—and, according to report, that means all of them—are now at the mercy of, not the refiners, as many of them are also producers and none of them can pay more for crude than the prices of refined justify, but of the foreign consumers and those who control the foreign trade in refined oil, and the consumers of liquid fuel in Russia.

That anyone who has closely observed the Baku oil trade for some time past will anticipate the true and undoubted cause of the existing depression being recognized by the trade, I do not believe. The "crisis," as the depression is called, commenced to be felt last April; for, as is shown by the prices for the year, the sharpest decline occurred in April. However, it seems probable that it was postponed by the hopes that the demand which is usually created by the opening of the Volga navigation (which occurs in March) would materially improve the situation. The shipments to the Volga commenced even earlier than usual in March, and the hopes of improvement in prices were not destroyed until some weeks later; not, in fact, until it was fully realized that those hopes were delusive, and then the prices of all products dropped quickly and materially, and the cry of "crisis" was heard. Of course, the to-be-expected appeal to the paternal Government went up to the authorities at St. Petersburg, and the result was that an official was immediately ordered to Baku to investigate the causes of the trouble.

This official spent sufficient time at Baku to learn the causes of the trouble, and his report was made late in June and was to the effect, according to the newspapers, that the cause of the depression was the combination of some of the heaviest exporters of Russian refined with the Americans, to limit the output of Russian refined. That the newspapers may have misquoted the official in a country where the press censorship is so strict is hardly possible, but it seems almost equally impossible that anyone with an opportunity to ascertain the facts, such as was afforded the official in question, could have reached such conclusions, for all the time he was at Baku the output of refined oil for export was absolutely all that the railway to Batum could transport, and the export from Batum was steadily increasing over that of the preceding year, the increase for the year in the export of illuminating oils being over 70,000,000 gallons, or about 30 per cent; and throughout the whole year, the quotations for American refined f. o. b. vessels at New York were away above the selling price f. o. b. Batum—sometimes nearly double that price—notwithstanding the ocean freights to competing points in Europe are about the same from the two ports, and to the Far East for case oil are always decidedly favorable to Batum.

Later in the year, and particularly after the flowing well was

struck in November and prices still further declined, the overproduction began to be recognized. Then came the usual talk of combination for the sale of crude at wells and refined oil for export; and it is said that a combination was arranged between a few of the producers for the months of December, January, and February, as an experiment, and later it was proposed to prolong the term of this agreement because its result had been so satisfactory. As the price of crude steadily declined after the organization of this remarkable combination, and is now much lower than it was three months ago, it is rather difficult to grasp the cause for satisfaction with its working.

At present, I believe the uselessness of any combination without assistance in the shape of concessions from the Government or outside capital is pretty fully recognized. Some talk of the lack of storage for crude and residuum, but as at the end of 1900 there was storage at wells for over 130,000,000 poods (nearly 16,000,000 barrels), while the total stocks at wells were only about 17,000,000 poods (a little more than 2,000,000 barrels), there seems to be no reason in such talk. Nor is there any lack of storage at the refineries, for at the end of 1900 there was storage at the refineries for over 275,000,000 poods (32,352,000 barrels), while the stocks of all products at the close of 1901 were only 165,000,000 poods (19,418,00c barrels). Of course, this storage is probably unequally distributed, but it is there and is undoubtedly available for any who have the means to pay for it. That, however, is really the trouble—the lack of money—for it takes money to continue working and to pay bills, and without reserves of capital the producer is doing exceedingly well who is meeting promptly his current obligations by the sale of his production, and is not in a position to hold his oil even had he storage.

Last May, when the "crisis" was acknowledged, it was reported that the Baku branch of the Imperial Bank had been instructed to be as liberal and lenient as possible with discounts. This sounded very well, but liberality and leniency in banking mean gilt-edged security, which, with existing conditions, is not to be had.

That up to the present there have been very few failures in the trade is, I think, wholly due to the hopes of the trade for an improvement upon the opening of Volga navigation, which is now certainly close at hand. This seems the only manner in which lack of failures can be accounted for, because with the prices which have been current since the first of the year only the very few producers who have flowing wells on low-royalty territory can possibly meet their obligations. Then, the trade is always sanguine regarding the result of the opening of Volga navigation. Last year, as shown

by the decline in prices, the disappointment was very great, and to a disinterested observer it seems that this year it may be even more bitter, for in addition to the very great and rapidly increasing stocks of residuum at Baku (residuum, as before stated, being the staple of the trade, and the demand for it for fuel from Russia being the basis of all hopes) there are wintering at Astrakhan, or rather at the mouth of the Volga, 43,000,000 poods (5,058,500 barrels), something which is unprecedented in the history of the trade. This residuum arrived at the mouth of the Volga last season, and, owing to the water in the river being too low, could not be forwarded up the river. In its position now, it is practically a part of the stocks at Baku, because it is held in vessels which will have to be removed, *i. e.*, will have to proceed up the river to make room for other barges to receive the first shipments from Baku As the amount is equal to any one month's shipment from Baku heretofore, the result is likely to be the retarding of shipments from Baku, which is equivalent to retarding the opening of navigation.

Last year, under much more favorable conditions, the trade was compelled to recognize the futility of its hopes for improvement from the opening of navigation; consequently, the inference seems fair that this year there can be no improvement from that cause, and that therefore, just as soon as that is made certain, the depression in the trade will materially increase.

If the average price of 8.25 kopecks (4.24 cents) per pood (36.112 pounds) for crude at wells in 1901 brought the trade to such financial straits as were apparent at the end of the year, it is very difficult to see how the majority of the operators can pull through a season, long or short, of such prices as are now prevailing, for they surely mean loss to all except the insignificant few who have big wells upon fee-simple or low-royalty territory. There seem to be no prospects of an advance in prices in the near future, but existing conditions, if not interfered with, must certainly bring about a great decline in the volume of the production. As is shown by the statistics annexed, the average number of wells started monthly in 1901 was 34 the first half of the year and only 13 the last half; in November and December, each, only six wells were started drilling. The cessation of drilling is now not a matter of judgment, but a necessity with practically the whole trade. In the Bibi-Eibat district, at present prices, the producer on Government territory must not only pay for his labor, but must add something to the results of that labor in order to pay his royalty; consequently, the more oil he produces the more he loses; and if no change is made in the royalty, it seems quite certain that no producer upon such lands will produce more than sufficient oil to pay the minimum annual amount required by

the conditions of his lease, and it is possible that they will find it cheaper to shut down their wells entirely and pay the amount necessary without producing, if they can get the money, which, however, in most cases is doubtful. Therefore, it seems reasonable to presume that the 24,000 barrels per day produced from the Bibi-Eibat Government lands last year will be very much reduced this year. In the other districts, there is probably as much more of last year's production which will be unprofitable at existing prices, and from those lands alone there will be sufficient decrease in the production to bring about a healthier state of affairs by the end of the year. Then, these low prices will no doubt assist in bringing about improvement by increasing the demand—not, however, for refined oil, as the home demand is handicapped by the excise of 60 kopecks (30.9 cents) per pood (36.112 pounds), which dwarfs any cost at Baku, while the transportation facilities to the Black Sea are practically limited to last year's work, but a very great increase in the demand for fuel oil from Russia is possible. If the manufacturer in the Moscow district changed from coal to oil fuel when the latter cost him 30 to 40 kopecks (15.4 to 20.6 cents) per pood, there should certainly be a great increase in the demand for oil fuel at 20 to 25 kopecks (10.3 to 12.87 cents) per pood.

The interference which is possible to the existing state of affairs is the change by the Government of the royalty upon the Bibi-Eibat lands from a fixed sum in kopecks per pood to a proportion of the oil produced, which change has been recently petitioned for by the lessees of those lands, proposing that the proportion of the oil be fixed upon the basis of conditions a year or more ago, when the price of crude at wells was 12 kopecks (6.2 cents), and taking the average royalty at 5 kopecks (2.5 cents) per pood, which means that they are satisfied to pay about 40 per cent royalty instead of what they are now paying. Considerable opposition to this change has been developed among the producers in other districts, and it is, of course, impossible to anticipate the reply of the authorities to this petition, notwithstanding there is precedent for the change, as the royalty upon half a dozen plots in the richest part of this field has recently been reduced from the original price of 6 kopecks (3 cents) per pood to 35 per cent. This change has only been recently published, but I understand it dates from the 1st of July last year. Then, the lessees who ask for the change claim that the Government has much to lose by refusing to make the change and equally much to gain by making it. They claim that under existing circumstances the lessees of this territory will certainly not produce more oil than sufficient to pay the minimum annual amount necessary to pay on the lease; while with the royalty changed to 40 per cent, the territory will be energetically drilled, for they claim that it is sufficiently rich to pay at

even present low prices, at 40 per cent royalty; that wells upon it will average 5,000 poods (600 barrels) daily, which means 3,000 poods (357 barrels) daily per well for the operators, which is very good business at 4 kopecks (2 cents) per pood for crude. In addition, they say there is the chance of striking a big flowing well.

But there is another side to this matter, as usual, even granting all that is claimed for the territory, and that is the probability of so great an increase in the production from the change asked that prices will decline still further. This result seems much more probable to me than that any improvement will be realized by the lessees. The annexed statistics of the prices of crude oil at wells for the last eleven years show that in both 1892 and 1893 the price was under 1½ kopecks (0.7 cent) per pood, and there is no reason to doubt that the price can again reach such a low figure. Not that I believe that producing oil with 5,000-pood (600 barrels) wells at 40 per cent royalty and 4 kopecks (2 cents) at wells will prove a very lucrative business, but I believe that at that royalty, for a time at least, the lessees would do all the work possible in the hope of getting the exceptional big well, and would undoubtedly materially increase the production much more rapidly than that from the other districts would fall off, and that the result would be an even worse state of affairs in a year than now exists; for a further increase in production can not help but result in a further decline in the price of crude oil, while the present price is said to be unprofitable. From the view point of all producers, this would be a fatal result, while from the view point of the landowner—the Government—it would be not much better. At present, by the terms of the lessees, the Government derives an annual income of about 2,075,000 rubles ($1,068,625) from this Bibi-Eibat territory, regardless of the amount of oil produced from it, *i. e.*, a minimum income of that amount. Admitting that the production can be doubled without further reducing the price of crude (which, however, is anything but certain), the production would reach 150,000,000 poods (750,000,000 gallons) per year and yield to the Government at 40 per cent royalty about 2,400,000 rubles ($1,236,000) a year, which is not a great deal more than it is sure of at present, while there is a chance that such an increase in the production would further depress prices so that not only would they derive no more from the land than at present, but the balance of the producers—*i. e.*, those operating in other parts of the fields—would be ruined. And then there is a chance that the production from this territory would be even more greatly increased, as it is thought by some that the territory of the Government at Bibi-Eibat alone can be made to produce 250,000,000 poods (1,250,000,000 gallons) annually, and not without reason, either. With such a production, who can doubt that the old era of very low prices would

again ensue and the result be even less income to the Government and absolute ruin to the whole trade?

REFINING.

That the refining interest also suffered materially from the decline in prices last year is shown by the following figures for the average monthly prices, per pood, of refined for Caspian Sea and railway shipment:

Month.	1900.				1901.			
	On vessels.		In cars.		On vessels.		In cars.	
	Kopecks.	*Cents.*	*Kopecks.*	*Cents.*	*Kopecks.*	*Cents.*	*Kopecks.*	*Cents.*
January	31.5	16.2	50.5	26	14.07	7.24	20.58	10.59
February	29.5	15.2	47.5	24.4	11.71	6.03	19.25	9.9
March	31.5	16.2	51.5	26.5	9.29	4.7	16.64	8.56
April	29	14.9	38	19.5	7.05	3.6	8.48	4.3
May	28	14.4	38.2	19.6	7.09	3.65	8.79	4.52
June	27.2	14	30.2	15.5	8.7	4.48	11.19	5.76
July	22	11.3	28.5	14.6	9.46	4.87	13.75	7.08
August	.....	.....	28.5	14.6	7.62	3.92	10.21	5.25
September	16	8.2	20	10.3	7	3.6	8.75	4.51
October	16	8.2	15.5	8.98	7.75	3.99	9.5	4.8
November	28	14.4	27.5	14.1	8.25	4.24	9	4.6
December	17	8.7	23	11.8	7.25	3.73	9.37	4.82
Year	25.1	12.92	33.2	17.09	8.77	4.51	12.13	6.24

Since January 1, the price has still further declined, sales of refined in tank cars having been made within the last ten days at 6½ kopecks (3.3 cents) per pood for February and March delivery, and the latest information at hand, dated four days ago, states that there has been no business doing for some time. For Caspian Sea shipment, no sales have been reported for weeks, as there have been no buyers in the market, indicating either that the business for the season of Volga navigation has already been covered, or that shippers have no confidence in the stability of even the present low prices. In January, it was reported at Baku that one of the strongest refining firms had offered refined for the whole season of Volga navigation at 6 kopecks (3 cents) per pood, without finding buyers.

Taking the usual calculation for the cost of refined—*i. e.*, 3½ poods of crude plus 3½ kopecks (1.80 cents) per pood of refined obtained (to cover chemicals, labor, etc., in refining)—for 1 pood of refined and 2 poods of residuum, there were times during the year when the refiner running on crude bought as it was required lost heavily; and taking the average prices of crude at wells (plus 0.25 kopeck, or 0.128 cent, per pood pipage to refineries) and residuum—*i. e.*, 8.25 and 8.87 kopecks (4.24 and 4.56 cents) per pood, respectively—the average cost of refined in the year was 15.51 kopecks

(8.9 cents) per pood, while the average price realized upon the basis of 61 per cent shipped by rail and 49 per cent by sea was only 11.7 kopecks (6.02 cents) per pood. But taking the actual results of refining for the whole year as a basis of calculation gives a slightly different result, the difference, however, being just about sufficient to confirm the other calculation as not far wrong. The following were the yields in the different products from the crude run in the years 1900 and 1901:

Description.	1900.	1901.
	Per cent.	*Per cent.*
Illuminating	25.52	22.4
Lubricating	2.87	2.67
Residuum	57.08	61.66
Total	85.47	86.73

Upon the basis of those yields, the cost of refined oil in the two years was about as follows:

Description.	1900.		1901.	
	Rubles.		*Rubles.*	
100 poods crude at 15.45 rubles in 1900 and 8.5 rubles in 1901	15.45	$7.95	8.50	$4.37
3.5 kopecks per pood of refined—25.52 and 22.4	.8932	.459	.785	.404
	16.3432	8.409	9.285	4.774
Less value of 62.82 poods residuum at 16.7 kopecks in 1900 and 67 poods at 8.87 kopecks in 1901	10.49	5.432	5.983	3.081
Leaving the cost of 25.52 poods refined in 1900 and 22.4 poods refined in 1901	5.8532	3.007	3.352	1.693
Making the cost of refined per pood in the two years	.23	.118	.15	.0772
While the average prices realized were	.277	.1426	.1045	.0538
Leaving a profit in 1900 and loss in 1901 of	.047	.0246	.0455	.0234

But the profit in 1900 and the loss in 1901 were probably both increased by the fact that the prices of crude in 1899 were lower than in 1900 and higher in 1900 than in 1901, as it is almost a custom in the trade for refiners to buy their crude in the winter for the ensuing year, to be delivered as required, so that in 1900 the refiners were probably running crude which cost them less than the average prices for the year and in 1901 which cost them more than the average prices for the year.

I must explain that as it is calculated that it requires 2 poods (10 gallons) of residuum for 1 pood (5 gallons) of lubricating, reducing the yields of the two years to illuminating and residuum only adds double the amount of the lubricating yield to that of residuum.

It seems that the refining business was also overdone in 1901, notwithstanding the stocks of illuminating oils were reduced in the year. It is said that many speculators leased refineries which had been idle for years, not for the purpose of legitimate refining, but simply for speculative purposes; that without a refinery, speculators can not purchase crude for speculative purposes, while with a refinery they are able to turn over monthly probably as much as ten times the amount they could use in their refineries. But that sort of speculation upon a declining market must have been risky, if not wholly unsatisfactory; and aside from the shutting down of such refineries, many others were either wholly stopped or were working half time at the beginning of the year. This, together with the fact that refiners are now taking much less illuminant from the crude than formerly—the yield in December having been less than 20 per cent of that product—accounts for the stocks of illuminating oil being smaller at the end of 1901 than at the end of the preceding year, while the stocks of crude and residuum were larger.

The export of Russian illuminating oils was materially increased last year, as is shown by the statistics annexed. The increase from Batum was over 72,000,000 gallons, but the decrease from Novorossisk reduced the total increase from Black Sea ports to about 55,000,000 gallons (nearly 20 per cent), which should be satisfactory and a sufficient evidence that the foreign demand had not been tampered with by combinations, as has been asserted. If the home consumption had been equally increased, conditions at Baku might now be very much better; but the fact is, all the statistics obtainable show not only no increase in the home consumption, but a material decrease. Accurate statistics for the export of Russian refined by rail are never obtainable; but it is not likely that the amount going out in that manner is very great, or that it differs from year to year sufficiently to make it of much importance in estimating the home consumption. The statistics of output from Baku via the Caspian, less the increase or plus the decrease in stocks at Novorossisk and less the export from that port, plus the shipments from Batum to Russian ports, make the home consumption last year about 40,000,000 gallons less than in 1900. Whether or not this may be fairly taken as indicating a falling off in the Russian home consumption I can not say, but am inclined to believe that it is due to the trouble experienced in shipping via the Volga at the end of the season last year because of low water. However, had the home shipments increased last year in the same proportion as the export, the output from Baku of illuminating oils would have been not far from 100,000,000 gallons greater, and that amount of refined would have left little stocks of either crude or refined at the end of the year.

Recently, at Baku, I heard some talk of the abolition by the Government of the 60 kopecks (30.9 cents) per pood excise tax now levied upon illuminating oil for home consumption, but could get nothing definite as to the basis for the speculation upon the subject, or that there were the slightest grounds for hopes that the tax would be abolished. However, as this tax must bring a revenue of not far from 20,000,000 rubles ($10,300,000) a year, it is not at all likely that it will be abolished.

The refiners have been endeavoring for months to devise some plan for a unification of the refining interests engaged in the export of illuminating oils. A committee was appointed some time ago to consider this matter, and after a number of meetings finally, at a meeting held at Baku on February 2 (15), reached the conclusion that no combination was possible without assistance from the Government, either in the shape of a rebate on the freight upon refined oil shipped to Batum and exported, which rebate shall be paid to members of the combination only, or by levying an export duty on refined, which shall be wholly or in part refunded to the combination. This conclusion was influenced by the experience gained through the so-called syndicate of 1895–1897, when about 80 per cent of the refining interest was bound with what was thought an iron-clad agreement, but which eventually seemed to bind the makers no longer than they saw fit to permit. But that syndicate had the great weakness of three heads, all of which seemed to be working for their own individual interests more than the good of the whole, and, it was claimed at the time, could not work in harmony, the result being competition between them with the merchandise of their fellow-members of the syndicate. Apparently, matters have not changed materially since the failure of the attempt mentioned, or, if there is any change, it is not for the better, for apparently there are now four interests which have to be provided for as heads to any combination.

At the meeting at which the above conclusion was reached, it was resolved to petition the Ministry of Finance to assist the proposed combination in one or the other manner mentioned, and the trade is now waiting for a reply to that petition.

Of course, it is impossible to anticipate the action of the ministry on this petition. The Government has heretofore been exceedingly kind to the refiners, having three times reduced the railway freight to Batum—once from 16 kopecks (8.24 cents) per pood (5 gallons) to 12 kopecks (6.08 cents), and the same amount some years later, which, after months of trial, seemed to give no results, and the freight was still further reduced to 9 kopecks (4.6 cents) and kept at that figure for months, with the inevitable result that the consumer instead of the refiner reaped the benefit. These concessions

were made upon the representations of the refiners that at existing rates they were unable to compete with American refined. Now, however, as has been hereinbefore mentioned, this trade has had no competition from the American trade in the past year, for maintaining prices twice as high is hardly competition. It is not at all likely that the Russian Minister of Finance is ignorant of that fact, and he doubtless appreciates the present state of affairs, knowing that the trouble is wholly due to overproduction and competition among the Russian exporters. However, it is rather interesting to know what excuses and apologies the petitioners will offer for their helplessness, and it would not be astonishing if the minister's patience were exhausted, and that he would tell the petitioners to work out their own salvation, or step out and permit others to take their places who might be able to make something out of the great riches nature has rained upon the country, without so constantly appealing to the Government for assistance.

However, should the ministry grant all the petitioners are asking, and even more, to the extent of carrying their refined to the Black Sea free of freight, any combination formed will very probably fail as did the others, and for the same reasons, *i. e.*, "too many cooks;" for, as I have stated, there are now four interests instead of three, which will be able to upset all plans of combination, unless they are provided for as heads, and if they are provided for by being made selling agents of the combination the result can only be the same, as a combination with four competing agents can not promise much to the trade.

RESIDUUM.

While the residuum output from Baku in 1901 was greatly in excess of the output the preceding year, the amount which reached the districts of principal consumption was not much more than in 1900. The total increase in the output was about 262,000,000 gallons, or 52,000,000 poods; but, as has been stated before, 43,000,000 poods (215,000,000 gallons) of this remains at the mouth of the Volga, which is not much nearer the center of consumption than Baku, and consequently, for all practical purposes, this amount can be added to the stocks at Baku, which makes those stocks on January 1 about 582,000,000 gallons instead of 367,000,000 gallons as shown by the statistics attached hereto. That is not far from twice the stocks of residuum at Baku on the 1st of January, 1901, and is a very considerable contribution toward the necessities of the current year.

The addition to the residuum stocks at Baku in the month of December was about 136,000,000 gallons, and then the total production of the month was not refined, as the crude stocks also increased about 1,000 000 barrels; consequently, upon the basis of 66 per cent

residuum from the crude, had the whole production in December been refined, the increase in the stocks of residuum in the month would have been about 163,000,000 gallons; but the crude production in January was probably less than in December, and it is likely to also be less in February and March. But taking the probable increase in stocks in the first three months of this year at 140,000,000 gallons per month, and the residuum in the crude stocks at the end of the year, will give a total stock of residuum at the opening of Volga navigation of not far from 250,000,000 poods (1,250,000,000 gallons), and as the total amount of residuum which reached the markets last year was only 273,000,000 poods (1,265,000,000 gallons), it is interesting to know what the trade will do with its monthly output of residuum after the opening of the Volga, in case the crude production does not materially decline or the demand for residuum does not materially increase.

It is, however, exceedingly probable that the present low prices for residuum will greatly increase the demand for that product for fuel in the manufacturing districts of Russia. As has been hereinbefore stated, the Russian consumption of oil fuel steadily increased during the seasons of high prices—even during last year, with the average price at Baku not far from 17 kopecks (8.75 cents) per pood (5 gallons), which made the cost to the consumer in the manufacturing districts about Moscow from 30 to 40 kopecks (15.45 to 20.6 cents) per pood; consequently, the inference is reasonable that the demand for it will materially increase at the prices which have been ruling for some time, and which are still declining.

The following are the monthly average prices of residuum at Baku in the last two years, per pood:

Month.	1900.		1901.	
	Kopecks.	*Cents.*	*Kopecks.*	*Cents.*
January	16.4	8.4	13.58	6.99
February	16.5	8.5	13.46	6.93
March	16.5	8.5	13.05	6.72
April	17.3	8.9	9.93	5.11
May	18.1	9.3	9.25	4.76
June	18.7	9.6	9.81	5.05
July	18	9.4	8.5	4.37
August	17.7	9.1	7.92	4.07
September	18	9.4	8	4.1
October	13.2	6.79	8.25	4.24
November	14.2	7.31	8	4.1
December	13.5	6.95	6.62	3.92
Year	17.7	9.11	8.87	4.56

Since the first of the year, the prices for prompt delivery have still further declined, the quotation for weeks having been 5 kopecks (2.57 cents), and only a few days ago a sale was reported at 4¾

kopecks (2.4 cents). For future delivery, few transactions have been reported in the last month, but the quotation has been 6 kopecks (3 cents) per pood for contracts for the season of Volga navigation, with considerable cash advances by the buyer. At the same time, some of the strongest buyers in the business were buying large accounts at as high as 7½ kopecks (3.6 cents) per pood, but without any cash advances. These transactions are a very fair indication of financial conditions at Baku, as they make advances of probably 35 per cent of the amount of sale worth 20 per cent of the total amount, or nearly 60 per cent.

It is quite probable that the principal shippers of residuum have already not only bought their residuum for the navigation season, but have also sold against their purchases, which, if the case, will only make the decline in the price after the opening of navigation the sharper and greater.

TRANSPORTATION.

While there were no additions to the railway or pipe-line capacity between Baku and Batum in 1901, the fact that the Mikhailovo-Batum pipe line was working the whole year instead of only seven months, as in the preceding year, accounts for the increased deliveries at Batum.

That there are great improvements contemplated in the transportation capacity is apparent from a little book published in August last by the pipe-line department of the Transcaucasian Railway, which not only gives an elaborate account of what has been done in pipe-line construction, with the cost of the Mikhailovo-Batum in the most minute detail, but also gives some exceedingly interesting information regarding the additions to this work which are to be made in the near future.

The cost of the construction of the Mikhailovo-Batum line (143⅓ miles, with three pumping stations) was, according to the above-mentioned book, 5,184,523.51 rubles ($2,670,029.70) up to the commencement of its utilization. After that and up to the end of the first year of operation of the line there was an additional cost (not working expenses, however) of 117,807.80 rubles ($60,671.01), making the total cost of the line up to the end of its first year in operation $2,730,700.71.

Concerning the contemplated additions to the transportation capacity between Baku and Batum, I quote as follows from the book mentioned:

> The completion of the railway from Baladjarri to Derbent, the double tracking of the Transcaucasian Railway from Baku to Akstafa, and the completion of the Mikhailovo-Batum pipe line, in connection with the rapidly increasing petroleum

industry of Baku, which necessitated the aforementioned work, made the station facilities at Baku wholly inadequate for the prompt and satisfactory shipment of petroleum products. Owing to the impossibility of increasing the yard facilities at Baku, it was necessary to transfer the loading of refined oil to the station of Volchi-Vorota, 25 versts (16⅔ miles) by rail from Baku, but only 11 versts (7⅓ miles) by pipe line, as the railway makes a big curve in order to avoid climbing the hill.

A number of receiving stations will be erected in the refining districts to collect the refined from the refineries and deliver it to a central station, from which it will be pumped to Volchi-Vorota, where it will be loaded into tank cars and delivered by railway to the tanks of the Mikhailovo-Batum pipe line at the former place. The estimated capacity of the Mikhailovo-Batum pipe line is 215,000 poods (1,192,250 gallons) per day, and as there are always fluctuations in the number of tank cars available, it has been determined that the central station at Baku shall be able to receive 240,000 poods (1,200,000 gallons) daily and pump not less than 215,000 poods (1,075,000 gallons) daily to Volchi-Vorota, which station must, however, be able to take care of 240,000 poods (1,200,000 gallons) per day.

Taking into consideration the number, capacities, and location of the refineries, it seems that the ends in view will be best accomplished by the construction of a receiving station for 6 refineries, with a daily capacity of 70,000 poods (350,000 gallons), near the storage tanks of Rothschilds, at Whitetown; another, with 90,000 poods (450,000 gallons) daily capacity, for 15 refineries, near Nobel Brothers' tanks, between Blacktown and Whitetown; and a third, with 80,000 poods (400,000 gallons) daily capacity, for 40 refineries, in Blacktown. The refined will be received into measuring tanks at the stations and then pumped into larger tanks. From the tanks at the first and second stations mentioned, the oil will gravitate into the tanks at the third station, which will be equipped not only for receiving refined from the refineries, but also for pumping to Volchi-Vorota the refined received at all three stations. The location of these stations, however, will be fixed by the railway people in connection with the committee of the council of the refiners. At Volchi-Vorota there will be three tanks, with an aggregate capacity of 600,000 poods (75,000 barrels), located sufficiently high upon the hillside to make the loading of tank cars by gravity practicable.

In connection with the construction of the pipe line from Baku to Volchi-Vorota, it was decided on June 29, 1900, to extend the Mikhailovo-Batum pipe line to the station of Ag-Taglia, 21 versts (14 miles) east of Tiflis. The main reason for going beyond Tiflis with this extension is the acknowledged necessity of increasing the yard capacity at Tiflis, which was accentuated by the completion of the branch line to Kars, of which Tiflis is the northern terminus. By continuing the pipe line from Mikhailovo to Ag-Taglia, the railway will get rid of from six to seven trains each way daily between Tiflis and Mikhailovo, and also of the necessity of maintaining at Tiflis four or five locomotives for the purpose of assisting trains over the heavy grade between Ag-Taglia and Tiflis. All these, together with the high cost of the land which would be necessary for the pumping station at Tiflis, make the locating of a pipe-line terminus at that place inexpedient. With the completion of the extension of the pipe line to Ag-Taglia and the Volchi-Vorota line, which will be about the beginning of the year 1903, there will be 374 versts (249⅓ miles) of pipe line in operation in a total distance of 842 versts (561⅓ miles).

The matter of increasing the transportation capacity from Baku to Batum is by no means exhausted by the completion of the work above described. For the purpose of explaining what it will be necessary to do to make the facilities adequate to present and future demands, the distance between the points may be divided into sections as follows:

Section.	Distance.	
	Versts.	*Miles.*
1. Batum to Mikhailovo	215	141⅓
2. Mikhailovo to Tiflis	112	74⅔
3. Tiflis to Naftloog	8	5⅓
4. Naftloog to Ag-Taglia	13	8⅔
5. Ag-Taglia to Akstafa	68	45⅓
6. Akstafa to Evlaki	151	100⅔
7. Evlaki to Adji-Kabool	156	104
8. Adji-Kabool to Volchi-Vorota	94	62⅔
9. Volchi-Vorota to Baladjarri	12	8
10. Baladjarri to Baku	13	8⅔
Total	842	561⅓

From Mikhailovo to Batum, the pipe line is working; from Mikhailovo to Ag-Taglia, the line is under construction, while from Tiflis to Naftloog there is a double line of railway for the Kars branch; from Akstafa to Volchi-Vorota, the second line of railway is now being constructed; from Baladjarri to Baku, there is a double railway line for the Petrovsk branch; and from Baku to Volchi-Vorota, the pipe line is under construction. Upon the completion of all this work, the transportation capacity from Ag-Taglia to Batum will be 125,000,000 poods (687,500,000 gallons) per year, except over that portion between Mikhailovo and Marelissa (about 12 miles), which will have a pipe-line capacity of 60,000,000 poods per year and a railway capacity of 40,000,000 poods per year, making a total of 100,000,000 poods (555,000,000 gallons) per year. The line east of Ag-Taglia to Akstafa will be able to transport 75,000,000 poods (416,250,000 gallons) per year, and the other sections east of Akstafa, because of the double line of rails, will be able to do 105,000,000 to 150,000,000 poods (582,750,000 to 832,500,000 gallons) annually.

From this, it will be seen that to transport even 100,000,000 poods of refined oil annually, the railway capacity between Ag-Taglia and Akstafa will have to be increased. As this line must carry the total traffic of the main line from Baku to Batum and also that for the branch line to Kars, the junction of which is at Naftloog, it will be necessary not only to double track this section, but to also extend the pipe line over the 68 versts (45 miles) from Ag-Taglia to Akstafa, because pipe-line transportation costs not more than half as much as rail.

But as Russian illuminating oil is rapidly conquering new markets all over the world and the demand is consequently increasing, it would be unwise to limit the transportation capacity from Baku to Batum to 100,000,000 poods per year, as such a course would soon result in again reaching existing conditions. To supply a demand of more than 100,000,000 poods annually, it will be necessary to increase the capacity between Evlaki and Adji-Kabool and from Mikhailovo to Marelissa, either by the construction of pipe lines or additional lines of rails. A pipe line covering these spaces, even with the line of pipe extended from Ag-Taglia to Akstafa, will, however, leave a space between the termini of the lines which would have to be covered by railway transportation, and under such conditions it is exceedingly doubtful if the transportation of refined oil could be to any great degree facilitated. Under existing circumstances, and with the fact in view that pipe transportation is 50 per cent cheaper than rail, the only economical manner in which the transportation capacity can be sufficiently increased to meet future necessities is by the extension of the pipe line from Ag-Taglia to Vochi-Vorota.

The aforegoing makes clear the wisdom of His Imperial Majesty in granting to a special conference called to consider the matter permission for the construction of the pipe line from Ag-Taglia to Volchi-Vorota, the investigations for which, together with the project for the line, were hastily commenced and are now in course

of preparation. According to this project, there are to be ten pumping stations between Baku and Salogli (30 miles east of Ag-Taglia); these stations are to be located upon the basis of 50 atmospheres pressure for each station, which will place them from 20 to 45 miles apart. And now that this permission has been given, the Volchi-Vorota station will be of only temporary construction, as it will be abandoned upon the completion of the line to Baku. The arrangements for receiving refined from tank cars at Ag-Taglia will also be only temporary, as that part of the work will be unnecessary upon the completion of the through line.

From this, which is official, it is seen that there is no doubt whatever about the construction of a pipe line from Baku to Batum being decided; but how long it will take to complete the work is difficult to say. The permission for the construction of the Mikhailovo-Batum line was granted in the spring of 1896, and yet the line did not commence working till July, 1900. I must explain, however, that the principal cause of the great delay was the difficulty in getting the pipe, which it was stipulated by the permission was all to be made in Russia. The contract for something like 125 miles of the pipe was given to a manufactory which was only being constructed, which imported the plant, together with twenty-five or thirty workmen, from the United States, and commenced rolling pipe in the spring of 1897; but they had great difficulty with the work, having been compelled to send the American workmen home, and consequently to teach their own men the work, the result being that much of the first pipe turned out and all of the couplings were refused by the pipe-line inspectors. I believe they did not complete their contract till late in 1899, and consequently it was impossible for the line to be rapidly constructed.

But this mill has been making very good pipe for some years now, and has, I think, already delivered here all the pipe necessary for the Ag-Taglia extension, as much of it is distributed along the route of the extension, which is along the railway line; and I am quite sure that there is nothing whatever to prevent the completion of this extension and the Volchi-Vorota line in the time specified in the aforegoing extract—*i. e.*, by the beginning of next year. And, according to an article which appeared in the newspapers several months ago, the pipe for the completion of the line from Ag-Taglai to Volchi-Vorota has already been ordered. As the works from which it is ordered—the same which has made all the pipe now in use—can easily turn out a mile of pipe a day (it did better, or rather the plant it brought from America did better, than that in the United States), there seems no reason whatever to anticipate delay on account of the pipe. Regarding the railway work mentioned, no accurate information is obtainable, so that it is impossible to say when it will be finished.

The statistics show that the Batum-Mikhailovo pipe line and the railway delivered at Batum in 1901 about 58,000,000 poods

(290,000,000 gallons) of refined oil and 9,000,000 poods (45,000,000 gallons) of illuminating distillate and solar oil, both of which are illuminating products. Of this amount, the pipe line delivered 55,000,000 poods (275,000,000 gallons), so that there is little doubt that the estimate of its annual capacity of 60,000,000 poods (about 330,000,000 gallons) is reasonable. It is my opinion that it can do even more than that. With the completion of the extension to Ag-Taglia, the line itself will not be able to do more, but with the shorter rail haul from Baku to the terminus of the line there will be more tank cars free for through traffic, so that I have no doubt that the transportation capacity from Baku to Batum for illuminating oil will next year be 75,000,000 poods, or about 375,000,000 gallons.

The shipments from Baku to Novorossisk last year were less than the year before; consequently, the full capacity of that route was not taxed, and as the Batum route could have carried more at times during the year, and there were heavy accumulations of stocks at both Batum and Novorossisk, there is no possibility of any part of the troubles now existing at Baku being charged to lack of transportation to the Black Sea.

Late in the year, the railway authorities made some concessions in the rate of freight on refined oil by the all-rail route from Baku to Novorossisk, which, however, were partly offset by the reduction of the excise allowance for loss in transit from 4 per cent to 2 per cent. The result was that the present rate of freight between Baku and Novorossisk is from 2 to 3 kopecks (1 to 1½ cents) per pood higher than the rate from Baku to Batum, instead of between 5 and 6 kopecks (2.5 to 3 cents) as formerly.

GROSNI FIELD.

I have not been able to obtain accurate figures for the production of the Grosni field in the past year; but I have absolutely accurate figures for the amount of oil piped from the wells in the year, and, as there were no stocks at wells of any account at the end of the year, these figures represent fairly the production, and I give them below in comparison with those of 1900:

Period.	1900.		1901.	
	Production.	Daily average.	Production.	Daily average.
	*Barrels.**	*Barrels.**	*Barrels.**	*Barrels.**
First half of year	1,554,943	8,629	2,151,790	11,886
Second half of year	2,103,981	11,435	2,039,128	11,082
Year	3,658,924	10,024	4,190,918	11,482

* Barrels of 42 gallons.

My figures for the number of wells in the field at the end of the year may not be absolutely accurate, but as the number is small, there is no chance for big errors. The number of wells at the close of the last two years was:

Description.	1900.	1901.
Producing wells	93	99
Wells standing idle	17	27
Wells drilling	25	38
Drilling deeper and repairing	7	13
Derricks ready to drill	12	10
Total	154	187

These figures apparently indicate that with 33 wells completed in the year, the number of producing wells was only increased six in the year, and the production was not increased, as the average daily production the last half of 1900 was more than the last half of 1901.

The royalty paid upon the total production of 1901—34,924,318 poods (831,531 barrels)—amounted to 599,652.34 rubles ($308,821), an average of about 1.72 kopecks (0.88 cent) per pood; but as the bulk of the royalty was paid by one company, which paid at the rate of 3.5 kopecks (1.8 cents) per pood upon more than 13,000,000 poods (309,528 barrels), the royalty of the other producers did not average more than 1 kopeck (0.5 cent) per pood. With such royalties, even the low prices now ruling at Batum would leave the Grosni producers not so badly off as those of Baku. At the end of the year, the Grosni producers were still getting about 8 kopecks (4 cents) per pood at wells, as there is a demand for Grosni oil for fuel in the territory nearer Grosni than Baku, which gives Grosni the advantage of 3 or 4 kopecks (1.5 or 2 cents) freight. But this demand is limited, and I recently heard that the price of crude at wells had declined to pretty nearly the Baku price since the first of the year.

Some illuminating oil was produced from the crude, but I have no idea how much, as most of it went for home consumption, the little that was exported having gone out by way of Novorossisk, and being of practically no importance. There are three refineries at Grosni, and a fourth is in course of construction; but the illuminating oil produced is too insignificant in quantity to play any part in the world's markets. I have been informed that owing to the heavy specific gravity of the crude, not more than from 8 to 10 per cent illuminating distillate can be taken from it without destroying the value of the residuum for fuel.

The number of producers in the Grosni field last year was ten, and their production for the year was from 65 barrels, the smallest, to 1,500,000 barrels, the largest.

JAMES C. CHAMBERS,
Consul.

BATUM, *February 26, 1902.*

Area of producing territory of Balakhani, Sabunchi, Romani, Binegadi, and Bibi-Eibat, and the manner in which it was acquired.

Landowners and conditions of lease.	District.	Territory.		Production.				Depth of wells.			Total number of wells Jan. 1, 1901.							
		Plots.	Area.	Number of wells.	In 1900.	From flowing wells.	Average per well per day.	Maximum.	Minimum.	Average.	Producing.	Trial pumping.	Deepening.	Repairing.	Cleaning.	Idle.	Drilling.	Total.
			Acres.		*Bbls.*	*Bbls.*	*Bbls.*	*Feet.*	*Feet.*	*Feet.*								
I.—Imperial grants.....	Balakhani...	19	256.05	296	5,206,230	.....	81	1,456	294	816	241	6	13	14	.....	59	27	360
IIa.—Crown lands leased at public auction at royalties in kopecks per pood.	Balakhani...	19	239.62	58	1,454,395	.....	105	1,596	343	935	43	3	3	3	.....	57	28	137
	Sabunchi.....	16	131.63	83	8,803,582	574,080	402	1,897	525	1,166	73	2	6	.....	.....	7	43	131
	Romani	2	18	9	220,367	.....	151	1,890	910	1,380	6	.....	3	.....	.....	.....	9	18
	Bibi-Eibat...	22	293.85	39	1,976,475	36,600	328	1,190	525	890	31	6	4	3	.....	.....	85	129
	Total.....	59	683.1	189	12,454,819	610,680	288	1,897	343	1,049	153	11	16	6	.....	64	165	415
IIb.—Crown lands leased without auction at royalties in kopecks per pood.	Balakhani...	1	15.3	5	116,268	.....	74	931	574	765	5	.....	.....	1	.....	1	1	8
	Sabunchi.....	10	24.75	5	991,601	497,160	1,102	1,498	1,092	1,226	4	2	.....	1	.....	.....	27	34
	Romani	1	1.35	3	213,993	.....	324	1,706	1,638	1,675	2	.....	1	.....	.....	.....	1	4
	Total.....	12	41.4	13	1,321,862	497,160	424	1,708	574	1,152	11	2	1	2	.....	1	29	46
III.—Crown lands leased at an annual rental of 10 rubles ($5.15) for 2.7 acres for 24 years and 100 rubles ($51.50) for 2.7 acres thereafter.	Balakani	16	419.4	346	7,784,856	.....	82	1,819	266	755	263	8	16	28	1	103	61	480
	Sabunchi.....	2	.67	2	7,156	.....	34	1,015	1,015	1,015	.....	.....	.....	.....	.....	4	.....	4
	Bibi-Eibat...	2	53.89	40	6,007,136	679,560	556	1,764	490	1,258	30	2	2	3	.....	4	4	45
	Binegadi	3	48.6	12	46,159	.....	12	1,232	210	433	12	1	.....	.....	.....	2	1	16
	Total.....	23	522.56	400	13,845,307	679,560	127	1,764	210	797	305	11	18	31	1	113	66	545
IV.—Crown lands leased from peasant holders.	Balakhani...	20	91.68	31	301,093	.....	39	1,498	238	811	23	1	1	1	.....	32	3	61
	Bibi-Eibat...	6	81	33	5,059,126	2,477,556	492	1,995	1,019	1,548	28	.....	.....	.....	.....	14	5	47
	Total.....	26	172.68	64	5,360,219	2,477,556	296	1,995	238	1,197	51	1	1	1	.....	46	8	108
V.—Land in dispute between holders and the Crown.	Romani	20	155.03	160	11,545,906	2,425,860	274	1,806	476	1,334	127	4	9	13	.....	35	62	250

Area of producing territory of Balakhani, Sabunchi, Romani, Binegadi, and Bibi-Eibat, and the manner in which it was acquired—Continued.

Landowners and conditions of lease.	District.	Territory.		Production.				Depth of wells.			Total number of wells Jan. 1, 1901.							
		Plots.	Area.	Number of wells.	In 1900.	From flowing wells.	Average per well per day.	Maximum.	Minimum.	Average.	Producing.	Trial pumping.	Deepening.	Repairing.	Cleaning.	Idle.	Drilling.	Total.
			Acres.		*Bbls.*	*Bbls.*	*Bbls.*	*Feet.*	*Feet.*	*Feet.*								
VI.—Private lands.....	Sabunchi.....	103	584.66	575	19,975,754	266,280	135	1,932	217	1,016	427	14	29	80	3	252	230	1,035
	Romani	11	28.14	13	1,756,994	1,182,852	586	1,813	1,190	1,498	66	.....	1	2	.....	13	18	40
	Binegadi	1	2.7	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1	.....	.....	.....	1
	Total.....	115	615.5	588	21,732,748	1,449,132	144	1,932	217	1,028	433	14	30	83	3	265	248	1,076
	Grand total..	274	2,446.32	1,710	71,467,091	8,139,948	158	1,995	210	975	1,321	49	88	150	4	583	605	2,800

NOTE.—These figures for the total production in 1900 differ from those previously given, because the above do not include crude collected from the water ditch and elsewhere, as it is impossible to determine accurately which territory produces such oil.

Month.	Balakhani-Sabunchi.		Romani.		Bibi-Eibat.		Total.	
	1900.	1901.	1900.	1901.	1900.	1901.	1900.	1901.
Wells producing.								
January	977	1,137	115	147	59	100	1,151	1,384
February	976	1,140	118	152	62	97	1,156	1,389
March	1,012	1,172	119	149	61	106	1,192	1,427
April	1,019	1,181	116	153	60	106	1,195	1,440
May	1,047	1,192	124	159	66	103	1,237	1,454
June	1,070	1,189	128	158	66	104	1,264	1,451
July	1,086	1,181	130	155	79	107	1,295	1,443
August	1,088	1,145	136	163	89	104	1,313	1,412
September	1,094	1,158	144	162	92	95	1,320	1,415
October	1,087	1,134	144	166	96	96	1,327	1,396
November	1,110	1,122	142	172	95	88	1,347	1,382
December	1,122	1,132	144	164	93	86	1,359	1,382
Average for the year	.....	.....	.....	.....	.....	.....	1,263	1,415
Flowing wells.								
January	.....	1	1	1	3	3	4	5
February	1	1	1	1	5	2	7	4
March	1	2	2	4	3	3	6	9
April	1	4	1	2	4	3	6	9
May	1	6	1	2	4	3	6	11
June	2	3	3	1	5	2	10	6
July	.....	3	3	1	5	2	8	6
August	.....	7	4	1	4	2	8	10
September	1	8	3	1	3	3	7	12
October	1	7	3	.....	4	3	8	8
November	2	5	1	1	4	3	7	9
December	2	5	1	2	4	4	7	11
Average for the year	.....	.....	.....	.....	.....	.....	7	8.5
Wells started drilling.								
January	35	27	2	6	7	5	44	38
February	27	27	.....	7	8	6	35	40
March	41	29	1	2	1	5	43	36
April	29	21	4	21	6	3	39	45
May	25	15	2	6	22	3	49	24
June	39	17	6	5	7	.....	52	22
July	19	22	4	.....	8	4	31	26
August	21	8	4	.....	7	3	32	11
September	36	5	1	4	15	6	52	15
October	19	12	6	1	5	.....	30	13
November	26	5	8	.....	4	1	38	6
December	22	4	5	1	1	1	28	6
Total	339	192	43	53	91	37	473	282

Wells completed, with average depths and average daily production.

Month.	Balakhani-Sabunchi			Romani.			Bibi Eibat			Total		
	Wells	Average depth.	Average production	Wells.	Average depth	Average production	Wells.	Average depth	Average production	Wells	Average depth	Average production
1900.	*Number.*	*Feet.*	*Barrels.**	*Number.*	*Feet*	*Barrels.**	*Number.*	*Feet*	*Barrels.**	*Number*	*Feet*	*Barrels.**
January	31	966	344	.....	.....	.....	1	1,140	[illegible]	32	980	191
February	20	931	136	2	1,090	[illegible]	1	[illegible]	440	23	[illegible]	149
March	18	868	930	3	1,300	412	4	[illegible]	[illegible]	25	[illegible]	[illegible]
April	28	1,001	109	4	1,148	450	1	708	292	33	1,010	[illegible]
May	30	934	200	2	1,117	91	.....	.....	.....	32	931	[illegible]
June	32	987	180	3	1,440	4,700	1	1,934	[illegible]	38	1,064	[illegible]
July	29	856	96	10	1,305	949	2	850	398	41	980	[illegible]
August	32	930	100	6	1,172	909	1	952	402	41	988	144
September	35	980	367	3	1,305	691	2	820	[illegible]	40	991	191
October	24	886	124	3	1,435	917	3	917	980	30	971	949
November	36	1,018	133	8	1,440	691	10	1,089	462	54	1,092	191
December	17	959	348	7	1,117	422	2	1,140	990	26	1,089	[illegible]
Year	341	930	231	55	1,190	888	34	980	[illegible]	448	990	194
1901.												
January	24	948	110	2	1,090	980	4	1,110	337	30	1,019	181
February	21	1,007	171	1	1,170	941	6	930	404	30	1,031	492
March	12	1,060	919	4	1,288	1,111	2	1,090	498	18	980	448
April	29	1,085	190	2	1,477	1,449	4	1,081	411	35	1,110	490
May	22	1,050	866	1	1,148	479	1	971	404	24	1,049	844
June	30	1,004	134	3	1,284	414	1	1,071	471	34	1,089	184
July	25	879	141	2	1,170	891	7	1,064	414	40	1,011	141
August	20	1,164	189	4	1,308	184	1	1,141	184	25	1,218	188
September	26	1,137	543	3	1,440	180	.....	.....	.....	29	1,181	208
October	22	1,033	163	6	1,407	194	1	1,391	691	29	1,121	280
November	25	1,050	268	7	1,400	1,044	1	1,281	448	33	1,144	401
December	15	991	145	2	1,470	961	3	1,025	1,218	20	1,188	411
Year	271	1,037	261	47	1,411	774	40	1,109	510	318	1,180	191

* Barrels of 42 gallons.

Total number of wells in the Baku fields on December 31, 1899, 1900, and 1901.

Condition of wells.	Balakhani-Sabunchi.			Romani.		
	1899.	1900.	1901.	1899.	1900.	1901.
Producing	907	1,985	1,102	118	140	168
Finished drilling, but not yet producing	47	27	38	3	3	5
Drilling	438	430	291	79	95	58
Drilling deeper	50	63	61	3	13	14
Cleaning out and under repair	94	104	146	14	11	24
Standing idle	363	522	832	28	45	75
Total	1,899	2,231	2,470	245	307	344
Rigs up ready for drilling	109	93	66	3	6	3

Condition of wells.	Bibi-Eibat.			Total.		
	1899.	1900.	1901.	1899.	1900.	1901.
Producing	56	81	84	1,081	1,306	1,354
Finished drilling, but not yet producing	.....	12	5	50	42	48
Drilling	62	83	67	579	605	416
Drilling deeper	2	7	6	55	83	81
Cleaning out and under repair	1	8	7	109	123	177
Standing idle	7	19	96	398	586	1,003
Total	128	210	265	2,272	2,748	3,079
Rigs up ready for drilling	32	16	3	144	115	72

Production of Baku oil fields in the years 1900 and 1901.

Month.	Balakhani-Sabunchi.		Romani.	
	1900.	1901.	1900.	1901.
	*Barrels.**	*Barrels.**	*Barrels.**	*Barrels.**
January	3,499,338	3,783,446	767,354	1,127,398
February	3,452,392	3,682,874	707,594	1,052,133
March	3,998,609	4,359,301	834,659	1,275,661
April	3,604,371	4,010,152	738,291	1,041,721
May	3,782,579	4,687,200	990,964	1,196,530
June	3,674,962	4,024,359	1,570,062	1,086,490
July	3,785,253	4,263,002	2,352,880	1,249,454
August	3,837,830	4,164,013	1,599,348	1,148,448
September	3,858,146	4,192,034	1,213,033	1,102,256
October	3,793,469	4,124,849	1,027,211	1,102,055
November	3,997,370	4,130,583	1,020,131	1,740,207
December	3,868,533	4,198,939	946,943	2,168,560
Total	45,152,852	49,620,752	13,768,476	15,290,913

Month.	Bibi-Eibat.		Total.	
	1900.	1901.	1900.	1901.
	*Barrels.**	*Barrels.**	*Barrels.**	*Barrels.**
January	912,388	1,273,661	5,179,080	6,184,505
February	890,934	1,113,004	5,050,920	5,848,011
March	851,879	1,273,911	5,685,147	6,908,873
April	828,111	1,407,129	5,170,773	6,458,902
May	1,031,761	1,046,378	5,805,304	6,930,108
June	1,095,969	1,173,277	6,340,993	6,284,126
July	1,411,666	1,317,774	7,549,805	6,830,230
August	1,272,852	1,188,358	6,710,030	6,500,819
September	1,030,224	1,171,920	6,101,403	6,466,210
October	1,171,836	1,137,970	5,992,516	6,364,874
November	1,317,917	2,454,458	6,335,418	8,325,248
December	1,281,878	1,475,842	6,027,354	7,843,341
Total	13,097,415	16,033,582	72,018,743	80,945,247

* Barrels of 42 gallons.

Production from flowing wells of Baku oil fields in the years 1900 and 1901.

Month.	Balakhani-Sabunchi.		Romani.	
	1900.	1901.	1900.	1901.
	*Barrels.**	*Barrels.**	*Barrels.**	*Barrels.**
January	.....	10,800	64,440	230,340
February	62,880	102,000	57,000	247,800
March	434,280	405,888	117,480	176,904
April	27,000	228,996	41,280	148,800
May	91,320	888,540	2,652	55,740
June	51,000	340,800	741,000	6,720
July	.....	367,188	1,477,200	140,400
August	.....	477,600	633,000	30,000
September	193,560	621,516	437,160	46,164
October	7,200	334,416	267,240	.....
November	347,760	364,008	215,520	622,640
December	122,520	316,740	57,360	1,226,340
Total	1,337,520	4,111,332	4,111,332	3,031,848

Month.	Bibi-Eibat.		Total.	
	1900.	1901.	1900.	1901.
	*Barrels.**	*Barrels.**	*Barrels.**	*Barrels.**
January	282,360	200,160	346,800	441,300
February	351,960	111,720	471,840	461,520
March	237,840	154,440	789,600	737,232
April	136,440	357,360	204,720	735,156
May	261,060	179,940	355,032	1,124,320
June	396,096	204,480	1,188,096	552,000
July	468,840	204,612	1,946,040	712,200
August	290,640	162,240	923,640	669,840
September	203,680	357,000	834,600	1,024,680
October	192,360	220,792	466,800	555,208
November	176,760	1,701,564	740,040	2,788,212
December	195,480	714,684	375,360	2,257,764
Total	3,193,716	4,568,992	8,642,568	12,059,332

* Barrels of 42 gallons.

Average daily production of Baku oil fields in the years 1900 and 1901

Month.	Flowing wells.		Pumping wells.	
	1900.	1901.	1900.	1901.
	*Barrels.**	*Barrels.**	*Barrels.**	*Barrels.**
January	11,252	14,235	155,815	185,265
February	16,270	16,483	157,900	192,374
March	25,471	23,782	157,921	199,085
April	6,824	24,505	163,535	190,791
May	11,453	36,265	175,815	187,287
June	39,603	18,400	171,963	191,071
July	62,775	22,974	180,767	197,356
August	29,795	21,608	186,658	188,096
September	27,820	34,156	175,560	181,384
October	15,560	17,910	180,973	184,183
November	24,668	92,940	186,512	184,568
December	12,108	72,508	184,580	180,503
Year	23,768	33,040	173,516	188,628

Month.	Total.		Stocks at wells at end of month.	
	1900.	1901.	1900.	1901.
	*Barrels.**	*Barrels.**	*Barrels.**	*Barrels.**
January	167,067	199,500	1,031,470	1,290,580
February	174,170	108,857	916,532	1,496,298
March	183,392	222,867	780,971	1,417,417
April	172,359	215,296	775,027	1,327,412
May	187,268	223,552	773,810	1,006,589
June	211,366	209,471	834,604	1,077,920
July	243,542	220,830	948,450	1,047,284
August	216,453	209,704	958,664	911,077
September	203,380	215,540	827,115	1,013,734
October	196,533	202,093	984,586	932,095
November	211,180	277,508	1,060,109	2,175,577
December	196,688	253,011	1,088,342	2,058,983
Year	197,284	221,768	.....	.....

* Barrels of 42 gallons.

Crude (net effective) production of Baku oil fields in 1900 and 1901, less loss and fuel.

Month.	Gross production.	Loss and fuel.	Net production.	Daily average.
1900.	*Barrels.**	*Barrels.**	*Barrels.**	*Barrels.**
January	5,179,080	654,555	4,524,525	145,920
February	5,050,920	851,810	4,199,110	144,800
March	5,685,147	622,484	5,062,663	163,312
April	5,170,773	528,310	4,642,463	154,749
May	5,805,304	567,845	5,237,459	168,950
June	6,340,993	526,683	5,814,310	193,810
July	7,549,805	771,636	6,778,169	218,651
August	6,710,030	706,671	6,003,359	193,651
September	6,101,403	684,779	5,416,624	180,554
October	5,992,516	677,276	5,315,240	171,427
November	6,335,418	869,395	5,466,023	182,201
December	6,097,354	740,801	5,356,553	172,792
Year	72,018,743	8,203,245	63,816,498	174,839
1901.				
January	6,184,505	836,019	5,348,486	172,532
February	5,818,011	756,937	5,091,074	181,823
March	6,908,873	765,862	6,143,011	198,162
April	6,458,902	682,841	5,776,061	192,535
May	6,930,108	743,590	6,186,518	199,565
June	6,284,126	803,285	5,480,841	182,695
July	6,830,230	833,433	5,996,797	193,445
August	6,500,819	754,810	5,746,009	185,355
September	6,466,210	753,382	5,712,828	190,427
October	6,364,874	766,645	5,598,229	180,588
November	8,325,248	830,099	7,495,149	249,833
December	7,843,341	834,943	7,008,398	229,303
Year	80,945,247	9,361,846	71,583,401	196,105

* Barrels of 42 gallons.

Stocks of all products at Baku, Batum, and Novorossisk on January 1, 1901 and 1902.

Product.	At Baku.	
	Jan. 1, 1901.	Jan. 1, 1902.
Crude:	*Barrels.*	*Barrels.*
At wells	1,088,342	2,058,983
At refineries	4,478,881	6,850,733
Total	5,567,223	8,909,716
	Gallons.	*Gallons.*
Illuminating	110,166,410	72,714,855
Lubricating	13,199,655	17,876,640
Residuum	301,550,745	367,271,330

Product.	At Batum.		At Novorossisk.	
	Jan. 1, 1901.	Jan. 1, 1902.	Jan. 1, 1901.	Jan. 1, 1902.
	Gallons.	*Gallons.*	*Gallons.*	*Gallons.*
Refined	28,816,585	49,793,885	4,002,245	8,745,730
Solar and distillate	2,241,270	2,881,130	623,550	.....
Lubricating	5,788,620	6,753,580	.....	.....
Residuum	1,106,445	1,572,180	3,008,425	3,186,080

Average monthly prices of Baku crude oil at wells, per barrel of 42 gallons.

Month.	1891.	1892.	1893.	1894.	1895.	1896.	1897.	1898.	1899.	1900.	1901.
	Cts.	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*
January	19	5.6	9.6	9.3	19.7	31	38.9	36.7	56	71.7	49.01
February	19	5.2	9.2	8.7	25	32	38.9	38	56.4	72.1	44.42
March	16.9	5	7.8	10	18.8	32.8	32.5	38.9	56	74.3	44.89
April	16.9	4.2	5.1	12.4	21.9	33.7	32.8	38.5	56	76.3	31.54
May	14.5	3.1	2.5	11.4	30.2	35.4	32.8	37.1	52.9	79.2	33.82
June	13	3.1	2.5	14	31.5	35.4	31.5	39.3	55.6	78.7	36.05
July	11.9	4.2	2.5	14	31	35.8	32.8	44.1	56.4	74.3	33.57
August	9.5	4.6	4.2	16.6	35	35.4	32.8	44.5	57.9	72.1	33
September	8.7	5.1	6.8	16.2	39.4	32.7	33.2	44.1	59.9	65.8	31.17
October	8.9	4.6	6.8	17	35	35.8	34	44.1	66	50	32.72
November	6.2	5.8	7.7	17.5	28.4	35.8	33.2	48	74.3	54.6	28.97
December	6	6.2	8.1	19.7	30.6	37.1	37.1	52.9	72.1	52.5	25.23
Year	12.5	4.6	5.9	13.6	28.4	34	33.7	42.8	60	68.6	32.67

Average monthly prices of residuum at Baku, per gallon.

Month.	1891.	1892.	1893.	1894.	1895.	1896.	1897.	1898.	1899.	1900.	1901.
	Cts.	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*
January	0.42	0.28	0.24	0.29	0.5	0.73	0.85	0.86	1.18	1.49	1.27
February	.37	.23	.24	.27	.52	.69	.75	.87	1.16	1.55	1.26
March	.32	.19	.19	.3	.52	.69	.77	.86	1.17	1.64	1.22
April	.37	.12	.14	.36	.56	.75	.75	.89	1.18	1.64	.92
May	.37	.1	.12	.36	.65	.75	.75	.85	1.17	1.69	.87
June	.37	.09	.11	.35	.60	.77	.75	.95	1.21	1.75	.92
July	.28	.09	.11	.37	.54	.8	.77	1.06	1.3	1.69	.8
August	.28	.09	.17	.42	.54	.67	.75	1.09	1.32	1.66	.74
September	.25	.09	.22	.39	.61	.67	.75	1.14	1.29	1.69	.75
October	.23	.09	.24	.38	.61	.68	.78	1.18	1.27	1.24	.77
November	.19	.11	.26	.42	.61	.70	.81	1.19	1.21	1.31	.75
December	.19	.19	.3	.47	.65	.80	.84	1.12	1.36	1.26	.62
Year	.3	.14	.2	.36	.57	.73	.77	1	1.24	1.55	.91

Average monthly prices of refined oil f. o. b. vessels on the Caspian Sea at Baku, per gallon.

Month.	1891.	1892.	1893.	1894.	1895.	1896.	1897.	1898.	1899.	1900.	1901.
	Cts.	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*
January	1.59	0.92	0.95	0.52	0.8	1.22	1.49	1.18	1.55	2.95	1.32
February	1.49	.84	1.03	.47	.8	1.22	.97	1.09	1.49	2.76	1.1
March	1.31	.84	.92	.32	.89	1.22	1.26	1.06	1.49	2.95	.87
April	1.12	.84	.77	.42	1.12	1.22	1.22	1.03	1.49	2.72	.66
May	.92	.65	.56	.42	1.22	1.31	.92	1.03	1.69	2.62	.66
June	.65	.56	.50	.32	1.40	1.22	.92	1.01	1.94	2.55	.81
July	.65	.56	.42	.42	1.59	1.31	.98	1.13	2.17	2.06	.89
August	.65	.56	.47	.56	1.78	1.31	.98	1.37	2.31	1.9	.71
September	.75	.65	.47	.65	1.83	1.26	.98	1.57	2.65	1.69	.66
October	.75	.65	.47	.7	1.59	1.22	1.05	1.68	2.71	1.49	.73
November	.84	.65	.52	.7	1.26	1.22	1.14	1.98	3.2	2.06	.77
December	.84	.84	.53	.8	1.26	.....	1.31	1.59	3.19	1.59	.66
Year	.96	.71	.63	.53	1.3	1.14	1.02	1.31	2.15	2.12	.82

Average monthly prices of refined oil in tank cars at Baku, per gallon.

Month.	1894.	1895.	1896.	1897.	1898.	1899.	1900.	1901.
	Cts.	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*	*Cts.*
January	0.32	1.45	2.43	1.22	1.44	2.24	4.53	1.92
February	.52	1.12	2.06	1.03	1.31	2.34	4.4	1.8
March	.32	1.12	2.06	1.05	1.28	1.95	4.82	1.56
April	.75	1.45	2.8	1.08	1.18	1.56	3.56	.79
May	.75	1.49	2.73	.86	1.1	1.54	3.58	.82
June	.75	1.68	2.35	.93	1	2.13	2.83	1.05
July	.75	1.87	2.62	.93	1.15	2.28	2.67	1.29
August	.75	1.97	2.06	.93	1.45	2.48	2.67	.98
September	.98	1.97	1.97	1.03	1.55	2.68	1.87	.82
October	.92	1.78	1.97	1.05	1.61	3.16	1.45	.89
November	.98	1.69	1.97	1.14	2.24	3.95	2.58	.8
December	.8	1.97	.....	1.31	1.89	5.05	2.15	.83
Year	.72	1.66	2.09	1.05	1.43	2.61	3.09	1.1

NOTE.—The difference between the price of refined f. o. b. vessels and in tank cars is due to the scarcity of tank cars at times, and is really a premium on tank-car capacity. The freight from Baku to Batum on refined is 16 kopecks per pood (8.24 cents per 5 gallons), and the loading and other expenses at Batum bring the total expense from Baku f. o. b vessels at Batum to about 0.94 cent per gallon.

Output of all products from Baku in the years 1900 and 1901.

Month.	Illuminating.		Lubricating.		Residuum.		Crude.		Total.	
	1900.	1901.	1900.	1901.	1900.	1901.	1900.	1901.	1900.	1901.
By rail.	*Gallons.*	*Gallons.*	*Gallons.*	*Gallons.*	*Gallons.*	*Gallons.*	*Gallons.*	*Gallons.*	*Gallons.*	*Gallons.*
January	24,235,000	26,450,000	4,355,000	4,635,000	3,160,000	980,000	3,195,000	6,160,000	34,945,000	38,225,000
February	23,475,000	26,730,000	4,350,000	4,850,000	2,135,000	1,675,000	5,310,000	4,935,000	35,270,000	38,190,000
March	27,540,000	34,485,000	4,005,000	4,045,000	2,420,000	2,015,000	6,160,000	5,440,000	40,125,000	45,985,000
April	27,455,000	31,330,000	3,255,000	4,845,000	2,180,000	2,610,000	4,530,000	4,340,000	37,420,000	43,125,000
May	20,530,000	35,145,000	2,715,000	3,735,000	1,365,000	2,025,000	3,595,000	4,270,000	28,205,000	45,175,000
June	25,005,000	35,145,000	3,785,000	2,690,000	1,965,000	1,490,000	4,960,000	4,675,000	35,715,000	44,000,000
July	29,435,000	34,890,000	3,480,000	3,615,000	1,465,000	1,350,000	4,745,000	4,980,000	39,125,000	44,835,000
August	28,565,000	31,915,000	5,005,000	4,160,000	2,590,000	2,535,000	5,190,000	4,030,000	41,350,000	42,640,000
September	31,540,000	30,340,000	4,060,000	4,120,000	2,120,000	2,535,000	4,670,000	4,030,000	42,390,000	41,025,000
October	23,880,000	31,505,000	3,005,000	4,885,000	1,195,000	1,240,000	4,525,000	4,625,000	32,605,000	42,255,000
November	25,390,000	33,255,000	4,405,000	2,340,000	1,095,000	965,000	4,685,000	4,780,000	35,575,000	41,280,000
December	24,875,000	30,650,000	5,310,000	3,890,000	985,000	1,030,000	6,015,000	6,275,000	37,185,000	41,845,000
Total	311,925,000	381,840,000	47,730,000	47,810,000	22,675,000	20,450,000	57,580,000	58,480,000	439,910,000	508,580,000
By sea.										
January	12,970,000	10,400,000	220,000	610,000	11,735,000	7,265,000	100,000	120,000	25,025,000	18,395,000
February	15,835,000	10,225,000	215,000	325,000	11,635,000	20,205,000	1,770,000	3,155,000	29,455,000	33,910,000
March	16,995,000	32,980,000	665,000	2,635,000	35,730,000	165,550,000	6,585,000	12,820,000	59,975,000	213,985,000
April	40,120,000	32,070,000	3,615,000	1,630,000	182,015,000	176,205,000	13,225,000	16,110,000	238,975,000	226,015,000
May	31,310,000	30,225,000	2,485,000	370,000	184,820,000	215,490,000	18,105,000	20,335,000	236,720,000	266,420,000
June	35,865,000	29,220,000	2,675,000	2,555,000	104,530,000	218,860,000	16,390,000	16,690,000	239,460,000	267,325,000
July	36,395,000	31,000,000	2,250,000	1,990,000	188,960,000	218,040,000	22,225,000	12,900,000	249,830,000	263,930,000
August	35,775,000	28,535,000	2,555,000	2,340,000	196,175,000	205,575,000	22,370,000	14,360,000	256,875,000	250,810,000
September	31,380,000	22,155,000	1,990,000	2,340,000	174,065,000	205,540,000	16,830,000	14,360,000	224,265,000	244,395,000
October	27,865,000	21,125,000	2,055,000	1,360,000	114,620,000	112,885,000	19,395,000	10,605,000	163,935,000	145,975,000
November	9,745,000	6,560,000	190,000	40,000	6,015,000	6,880,000	30,000	55,000	15,980,000	13,535,000
December	11,070,000	3,925,000	410,000	1,110,000	5,615,000	7,680,000	285,000	6,275,000	17,380,000	12,805,000
Total	305,325,000	258,420,000	19,325,000	17,305,000	1,295,015,000	1,560,175,000	137,310,000	121,600,000	1,757,875,000	1,957,500,000

Output of all products from Baku in the years 1900 and 1901—Continued.

Month.	Illuminating.		Lubricating.		Residuum.		Crude.		Total.	
	1900.	1901.	1900.	1901.	1900.	1901.	1900.	1901.	1900.	1901.
Total.	*Gallons.*	*Gallons.*	*Gallons.*	*Gallons.*	*Gallons.*	*Gallons.*	*Gallons.*	*Gallons.*	*Gallons.*	*Gallons.*
January	37,205,000	36,850,000	4,575,000	5,245,000	14,895,000	8,245,000	3,295,000	6,280,000	59,970,000	56,620,000
February	39,310,000	36,955,000	4,565,000	5,175,000	13,770,000	21,880,000	7,080,000	8,090,000	64,725,000	72,100,000
March	44,535,000	67,465,000	4,670,000	6,680,000	38,150,000	167,565,000	12,745,000	18,260,000	100,100,000	259,970,000
April	67,575,000	63,400,000	6,870,000	6,475,000	184,195,000	178,815,000	17,755,000	20,450,000	276,395,000	269,140,000
May	51,840,000	65,370,000	5,200,000	4,105,000	186,185,000	217,515,000	21,700,000	24,605,000	264,925,000	311,595,000
June	60,870,000	64,365,000	6,460,000	5,245,000	186,495,000	220,350,000	21,350,000	21,365,000	275,175,000	311,325,000
July	65,830,000	65,890,000	5,730,000	5,605,000	190,425,000	219,390,000	26,970,000	17,880,000	288,955,000	308,765,000
August	64,340,000	60,450,000	7,560,000	6,500,000	198,765,000	208,110,000	27,560,000	18,390,000	298,225,000	293,450,000
September	62,920,000	52,495,000	6,050,000	6,460,000	176,185,000	208,075,000	21,500,000	18,390,000	266,655,000	285,420,000
October	51,745,000	52,630,000	5,060,000	6,245,000	115,815,000	114,125,000	23,920,000	15,230,000	196,540,000	188,230,000
November	35,135,000	39,815,000	4,595,000	2,380,000	7,110,000	7,845,000	4,715,000	4,775,000	51,555,000	54,815,000
December	35,945,000	34,575,000	5,720,000	5,000,000	6,600,000	8,710,000	6,300,000	6,365,000	54,565,000	54,650,000
Total	617,250,000	640,260,000	67,055,000	65,115,000	1,318,590,000	1,580,625,000	194,890,000	180,080,000	2,197,785,000	2,466,080,000

To—	Crude and residuum.		Lubricating oil.		Distillate and solar.		Refined.		Total.	
	1900.	1901.	1900.	1901.	1900.	1901.	1900.	1901.	1900.	1901.
	Gallons.	*Gallons.*	*Gallons.*	*Gallons.*	*Gallons.*	*Gallons.*	*Gallons.*	*Gallons.*	*Gallons.*	*Gallons.*
Austria-Hungary	193,550	.....	2,902,725	1,566,280	.....	2,385,695	1,714,325	3,429,585	4,810,600	7,381,560
Belgium	3,843,625	2,310,655	10,688,635	7,950,995	188,750	313,560	8,385,600	7,893,750	23,106,610	18,468,960
Bulgaria	10,450	11,750	49,050	53,150	....	.....	1,844,680	2,787,050	1,904,180	2,851,950
China	.....	.....	.....	.....	.....	.....	13,360,350	21,320,040	13,360,350	21,320,040
Cochin China	.....	.....	.....	.....	.....	.....	1,161,600	999,640	1,161,600	999,640
Egypt	19,950	11,000	166,100	178,550	.....	.....	11,754,170	12,827,995	11,940,220	13,017,545
United Kingdom	482,135	604,165	7,927,890	8,197,845	18,357,275	16,147,010	48,161,165	47,907,625	74,928,465	72,856,645
France	1,315,765	864,755	9,318,970	9,907,420	8,448,130	24,786,145	4,060,285	1,204,190	23,143,150	36,762,510
Germany	1,090,080	1,790,905	9,920,875	9,119,960	36,000	....	15,615,810	11,883,980	26,662,765	22,794,845
Italy	1,982,270	221,000	464,850	199,650	.....	.....	1,835,345	6,247,045	4,282,465	6,667,700
India	.....	....	.....	40,000	.....	.....	32,158,680	53,624,490	32,158,680	53,664,490
Japan	.....	.....	2,500	.....	.....	.....	1,620,000	4,070,000	1,622,500	4,070,000
Java	.....	.....	.....	.....	.....	.....	7,864,030	5,832,070	7,864,030	5,832,070
Malta	.....	.....	.....	.....	.....	.....	1,312,275	1,182,735	1,312,275	1,182,735
Netherlands	.....	.....	317,200	337,450	.....	.....	.....	6,159,815	317,200	6,497,265
Philippine Islands	.....	.....	.....	.....	.....	.....	2,246,170	1,965.350	2,246,170	1,965,350
Roumania	2,050	800	93,200	111,450	.....	.....	403,760	549 680	499,010	661,930
Siam	.....	.....	.....	.....	.....	.....	.....	473,000	.....	473,000
Spain	.....	.....	416,895	607,020	.....	.....	.....	.....	416,895	607,020
Suez Canal	.....	.....	....	.....	.....	.....	38,341,955	53,459,530	38,341,955	53,459,530
Turkey	39,350	78,750	77,250	131,850	.....	.....	35,516,945	39,268,960	35,633,545	39,479,560
Portugal	.....	.....	.....	.....	.....	.....	2,695,650	1,116,650	2,695,650	1,116,650
Other countries	9,450	9,350	58,650	58,200	.....	.....	668,350	1,989,460	736,450	2,057,010
Total exported	8,988,675	5,903,135	42,404,790	38,459,820	27,030,155	43,632,410	230,721,145	286,192,640	309,144,765	374,188,005
Russia	143,630	263,300	1,110,795	1,181,105	38,550	19,730	23,517,555	15,267,955	24,810,530	16,732,090
Total shipped	9,132,305	6,166,435	43,515,585	39,640,925	27,068,705	43,652,140.	254,238,700	301,460,595	333,955,295	390,920,095

NOTE.—"Distillate and solar" means illuminating distillate to Austria and France and gas oil to the United Kingdom. In addition to the above, the steamer *Norramore* took 2,190,000 gallons of refined in cases and 30,000 gallons of lubricating, but was wrecked in the Black Sea.

Shipments of petroleum products from Novorossisk, Russia, in 1900 and 1901.

To—	Crude and residuum.		Lubricating oil.		Distillate and solar.		Refined.		Total.	
	1900.	1901.	1900.	1901.	1900.	1901.	1900.	1901.	1900.	1901.
	Gallons.	*Gallons.*	*Gallons.*	*Gallons.*	*Gallons.*	*Gallons.*	*Gallons.*	*Gallons.*	*Gallons.*	*Gallons.*
Africa	.....	.....	.....	.....	.....	.....	.....	297,120	.....	297,120
Austria-Hungary	.....	.....	.....	.....	.....	.....	1,644,710	.....	1,644,710	.....
Belgium	1,362,020	800,585	249,320	.....	.....	.....	3,776,290	2,233,500	5,387,630	3,034,085
Egypt	.....	.....	.....	.....	.....	.....	.....	741,530	.....	741,530
United Kingdom	8,094,615	1,722,615	87,760	.....	7,990,715	4,562,600	12,912,730	7,875,335	29,085,820	14,160,550
France	1,272,155	1,645,290	456,375	.....	5,514,030	.....	.....	.....	7,242,560	1,645,290
Germany	1,091,405	408,635	456,490	.....	.....	.....	3,964,305	990,300	5,512,200	1,398,935
Italy	1,365,090	2,137,765	.....	.....	.....	.....	3,836,440	2,030,090	5,201,530	4,167,855
Malta	.....	.....	.....	.....	.....	.....	598,485	115,240	598,485	115,240
Netherlands	.....	.....	.....	.....	.....	.....	1,120,610	.....	1,120,610	.....
Portugal	.....	.....	.....	.....	.....	.....	539,330	.....	539,330	.....
Spain	193,495	651,895	46,640	.....	.....	.....	.....	.....	240,135	651,895
Suez Canal	.....	.....	.....	.....	.....	.....	31,142,300	28,256,705	31,142,300	28,256,705
Total exported	13,378,780	7,366,785	1,296,585	.....	13,504,745	4,562,600	59,535,200	42,539,820	87,715,310	54,469,205
Russia	1,230,470	1,001,000	.....	.....	.....	.....	13,916,165	13,859,230	15,146,635	14,860,230
Total shipped	14,609,250	8,367,785	1,296,585	.....	13,504,745	4,562,600	73,451,365	56,399,050	102,861,945	69,329,435

Total shipments of Russian petroleum products from Black Sea ports in 1900 and 1901.

To—	Crude and residuum.		Lubricating oil.		Distillate and solar.		Refined.		Total.	
	1900.	1901.	1900.	1901.	1900.	1901.	1900.	1901.	1900.	1901.
	Gallons.	*Gallons.*	*Gallons.*	*Gallons.*	*Gallons.*	*Gallons.*	*Gallons.*	*Gallons.*	*Gallons.*	*Gallons.*
Austria-Hungary	193,550	.....	2,902,725	1,566,280	.....	2,385,695	3,359,035	3,429,585	6,455,310	7,381,560
Belgium	5,205,645	3,111,240	10,937,955	7,950,995	188,750	313,560	12,161,890	10,127,250	28,494,240	21,503,045
Bulgaria	10,450	11,750	49,050	53,150	.....	.....	1,844,680	2,787,050	1,904,180	2,851,950
China	.....	.....	.....	.....	.....	.....	13,360,350	21,320,040	13,360,350	21,320,040
Cochin China	.....	.....	.....	.....	.....	.....	1,161,600	999,640	1,161,600	999,640
Egypt	19,950	11,000	166,100	178,550	.....	.....	11,754,170	13,569,525	11,940,220	13,759,075
United Kingdom	8,576,750	2,326,780	8,015,650	8,197,845	26,347,990	20,709,610	61,073,895	55,782,960	104,014,285	87,017,195
France	2,587,920	2,510,045	9,775,345	9,907,420	13,962,160	24,786,145	4,060,285	1,204,190	30,385,710	38,407,800
Germany	2,181,485	2,199,540	10,377,365	9,119,960	36,000	.....	19,580,115	12,874,280	32,174,965	24,193,780
India	.....	.....	.....	40,000	.....	.....	32,158,680	53,624,490	32,158,680	53,664,490
Italy	3,347,360	2,358,770	464,850	199,650	.....	.....	5,671,785	8,277,135	9,483,995	10,835,555
Japan	.....	.....	2,500	.....	.....	.....	1,620,000	4,070,000	1,622,500	4,070,000
Java	.....	.....	.....	.....	.....	.....	7,864,030	5,832,070	7,864,030	5,832,070
Malta	.....	.....	.....	.....	.....	.....	1,910,760	1,297,975	1,910,760	1,297,975
Netherlands	.....	.....	317,200	337,450	.....	.....	1,120,610	6,159,815	1,437,810	6,497,265
Philippine Islands	.....	.....	.....	.....	.....	.....	2,246,170	1,965,350	2,246,170	1,965,350
Portugal	.....	.....	.....	.....	.....	.....	3,234,980	1,116,650	3,234,980	1,116,650
Roumania	2,050	800	93,200	111,450	.....	.....	403,760	549,680	490,010	651,930
Siam	.....	.....	.....	.....	.....	.....	.....	473,000	.....	473,000
Spain	193,495	651,895	463,535	607,020	.....	.....	.....	.....	657,030	1,258,915
Suez Canal	.....	.....	.....	.....	.....	.....	69,484,255	81,716,235	69,484,255	81,716,235
Turkey	39,350	78,750	77,250	131,850	.....	.....	35,516,945	39,268,960	35,633,545	39,479,560
Other countries	9,450	9,350	58,650	58,200	.....	.....	668,350	2,286,580	736,450	2,354,130
Total exported	22,367,455	13,269,920	43,701,375	38,459,820	40,534,900	48,195,010	290,256,345	328,732,460	396,860,075	428,657,210
Russia	1,374,100	1,264,300	1,110,795	1,181,105	38,550	19,730	37,433,720	29,127,185	39,957,165	31,592,320
Total shipped	23,741,555	14,534,220	44,812,170	39,640,925	40,573,450	48,214,740	327,690,065	357,859,645	436,817,240	460,249,530

NOTE.—All shipments from Novorossisk were in bulk. "Distillate and solar" means illuminating distillate to Austria and France and gas oil to the United Kingdom. To the above must be added, in order to get total output, 2,190,000 gallons of refined and 30,000 gallons of lubricating in cases, the cargo of the steamer *Norramore*, total loss in the Black Sea.

RUSSIAN AND AUSTRIAN EMIGRATION THROUGH PRUSSIA.

Mr. Jackson, secretary of the embassy at Berlin, under date of March 17, 1902, reports that it has recently been announced in several prominent newspapers (the Schlesische Zeitung, the Berliner Neueste Nachrichten, and others) that an agreement has been made between the Prussian railway authorities, the Regierungs-Präsident at Oppeln, and the North German Lloyd and Hamburg-American steamship companies with regard to forwarding through Germany (Prussia) emigrants from Russia and Austria-Hungary. This agreement is substantially as follows:

(1) No emigrant coming from Russia shall be admitted to Prussian territory unless his passport is entirely in order, unless he has a cabin ticket (Kajütenfahrkarte) for America, and unless he has in his possession sufficient means—in the case of a healthy person, not a criminal, of more than 10 years of age, at least 400 marks ($95.20); in the case of children younger than ten, 100 marks ($23.80). Russian emigrants who have in their possession through tickets to the harbor from which they are to sail, as well as cabin tickets by a German line, are not called upon to show that they have "sufficient means." The possession of a cabin ticket by way of a non-German line is not to be considered as satisfactory evidence of means.

(2) Emigrants coming from or through Austria-Hungary must have the same evidence of means as prescribed under No. 1, or a ticket to the embarkation point and a steamer ticket to America by a German line, or the requisite railway ticket and a certificate from the North German Lloyd or Hamburg-American Line to the effect that they have been properly registered in Myslowitz and (or) Ratibor.

THE PRUSSIAN COMMISSION ON AMERICAN RAILROADS.

It is more or less generally known that, during the year 1900, a committee of official experts was sent out by the Prussian Government to visit the United States and examine carefully the methods of railway construction, equipment, and management in our country, with a view of determining which, if any, of the distinctive features of American practice could be advantageously adopted for the improvement of the State railways in Germany. The commission, as will be remembered, spent some months in the United States, traveled over several of the great trunk lines, and made elaborate studies of tracks, bridges, locomotives, cars for passengers and the several classes of freight, the block system and other methods of signaling—in fact, everything pertaining to American railway building, equipment, and management. These studies were especially

devoted to the Pennsylvania system, which was taken as a typical American railway of the highest class.

It has been expected that the official report of the commission would be eventually published, and from time to time statements, more or less conjectural, have been printed in the newspapers of both countries, anticipating what the report would or should contain. It can be authoritatively stated that the official report of the commission has been duly made to Baron von Thielen, chief of the Prussian Ministry of Railways, but it has not been published, and, in accordance with the usual practice of the German Government in such cases, will not be. Being consulted in reference to this question of publication, Minister von Thielen has stated verbally, with great frankness and courtesy, that the whole subject was one of deep interest to railway men in Germany; that they had learned a great deal from this scientific study of the American system, which, as he stated, has been the rapid outgrowth of conditions fundamentally different from those which exist in Germany, and upon which the Prussian railway system had been slowly and carefully built up. Especially interesting and valuable was the American plan of locomotive construction in standard types, with interchangeable parts. Something of this is in process of adoption in Germany.

But in respect to cars, both for freight and passengers, such changes as are made must be planned to fit the conditions existing here, which differ radically from those in the United States. The 40, 50, or 60 ton freight car, for example, is highly economical and advantageous in America, where freight is moved in enormous masses and over long distances. Here in Germany, on the other hand, the amount of freight is much smaller, the distances relatively short, and the need for individualizing shipment so general as to be a controlling factor. The old 10-ton German freight car, says Baron von Thielen, may and will be advantageously replaced by others of 30 tons capacity, but enlargement beyond that limit would involve changes in track, switches, platforms, and especially in the loading and unloading arrangements of mines, furnaces, and other large manufacturing plants, and is therefore for the present inadvisable. The Prussian freight car of the future will presumably have a maximum capacity of about 30 tons, and will run on bogie trucks of the American type.

In respect to passenger cars, the Prussian State railways have settled down to a definite model for long-distance service, viz, the vestibule car, 58 to 60 feet in length, running on two four-wheeled trucks, and divided into compartments with a corridor aisle running along one side of the carriage. Three Pullman cars of the standard

American pattern were purchased and brought to Germany for trial, but although they were admirably built and ran with remarkable smoothness and freedom from jar and noise, they are not liked by the German public, who prefer the smaller compartment which accommodates six or eight passengers and in which, when the train is not crowded, a certain degree of privacy can be secured. The same is true of sleeping cars and for similar reasons. The most popular type of sleepers in Germany is that divided into small compartments, each containing an upper and lower berth and having a separate washbowl and water supply. American parlor and sleeping cars are, according to German ideas, unnecessarily heavy, richly upholstered, and therefore costly, although the cheapness of special fares on such cars is frankly conceded. Such, in substance, is the judgment of the German experts on American railway methods. That it is a wonderfully efficient and capable system, admirably adapted to a country like ours, where long distances are to be traversed, where railways are owned by corporations and must be equipped for the sharpest and closest competition between parallel and independent lines, where social relations are based on equality between individuals and the restrictions of caste do not exist—all this is freely admitted.

But the Prussian railway system is the property of the State; it has been slowly developed from small beginnings into an organization which pays above its operating expenses not only the entire interest on the Prussian debt, but turns an annual surplus of many millions into the public treasury. That the rates for freight and first-class passenger fares are very high—so high indeed that the former constitute a heavy handicap on agriculture and many inland industries—is unquestionable. German miners and manufacturers look with envious surprise upon the economies of railway freight in America, and their main hope for the future is in the extension and improvement of the inland river and canal system which is advocated so urgently by the Imperial Government.

FRANK H. MASON,
Consul-General.

BERLIN, *February 28, 1902.*

THE NEW ELECTRIC UNDERGROUND AND ELEVATED RAILWAY AT BERLIN.

After five and a half years of labor in construction, the Berlin elevated and underground electric railway was opened for traffic on Tuesday, February 18, in the presence of the Imperial Minister of Public Works and a large concourse of distinguished persons. The new line forms so important an addition to the intramural transit equipment of the German capital, and includes in its construction

certain features so novel and attractive from a technical standpoint, that some account of the inception and fulfillment of this enterprise may be of interest, as an example of German municipal methods in dealing with transit corporations.

Those familiar with the Berlin of to-day know that it possesses, besides a comprehensive and excellent system of electrical surface tramways, an elevated steam railway (Stadtbahn) in two loops, which traverse the city in the form of an elongated figure 8, and a so-called "Ringbahn" or belt line of electrical surface roads on which cars make the circuit at frequent intervals and in opposite directions. But as long ago as 1892, it became apparent that all these were inadequate to handle the steadily growing traffic of the central portion of the city. Many of the principal streets in the older districts are narrow; many which were laid out centuries ago to fit the meanderings of the river are crooked; and at many points where these crowded thoroughfares converge, cars and omnibuses pass so continuously and travel becomes so congested at certain hours that some new means of relief became imperative. Accordingly, Messrs. Siemens & Halske, the eminent electrical manufacturers and constructers, petitioned for a franchise to build and operate an electrical railway which should be subterranean in the densely built central portions of the city and elevated in the southern and western precincts, where space and other conditions favored such construction. The franchise was granted March 22, 1893, for a term of ninety-nine years, and included several rather exacting provisions, which will be hereinafter described. Under it, contracts were made with the municipality of Berlin, July 18, 1895, and subsequently with the suburban cities of Schoeneberg and Charlottenburg, through which the projected line was to pass. Actual work was begun with imposing ceremonies on September 10, 1896. The organization of the company was completed April 27, 1897, when the Deutsche Bank became the financial backer of the corporation. Its capital is 25,000,000 marks ($5,950,000), one-half of which is represented by 4 per cent bonds, the other half being ordinary stock shares. This company entered into a contract with Messrs. Siemens & Halske, owners of the franchise, by which the corporation acquires all rights and privileges previously granted to the firm. Messrs. Siemens & Halske on the other hand agreed to build and equip the road and operate it for one year, with a guaranteed net profit of 4 per cent on their investment and one-fourth of the net earnings above the guaranteed limit. After the road shall have been thus operated for one year by its builders, it will pass into the permanent control of the company. The municipality, in August, 1897, granted right of way for the entire distance, viz, 10.4 kilometers (6.5 miles), of which 7.8 kilometers (4.8 miles) are in Berlin proper, 2 kilometers (1.2 miles) in

Schoeneberg, and 1.4 kilometers (0.8 mile) in Charlottenburg, two populous and handsome suburban cities which adjoin Berlin on the south and west, respectively. For the use of this right of way, the company is pledged to pay to the municipality of Berlin 2 per cent of its annual earnings up to 6,000,000 marks ($1,428,000). If they reach 7,000,000 marks ($1,666,000) the percentage will be 2¼ per cent, and so on, one-fourth of 1 per cent increase for each additional million marks earned. From the beginning of the fifth year after the date of granting the franchise, not less than 20,000 marks ($4,760) shall be paid as such percentage.

The municipality of Schoeneberg receives eight thirty-sixths of 1 per cent of the earnings up to 7,000,000 marks and one thirty-sixth of 1 per cent for each million earned above that figure.

Thirty years after the road shall have been opened, the three municipalities have a joint option of ten years' duration during which to purchase the entire property at a fair valuation. If they choose to waive this option, the road will be operated by the company until the expiration of its 99-year franchise, when it reverts to the exclusive possession of the municipality.

The wholly underground section of the road which leads from Potsdamer place northeastward to the Alexander platz beyond the river is still in abeyance, and will not be commenced until the overhead sections have been operated and their efficiency, both technical and commercial, demonstrated by the test of actual experience. These two sections start from a common underground terminus at Potsdamer platz, one of the focal points of city traffic where the steam railways from Wannsee, Potsdam, and beyond meet the Ringbahn and several other important electrical tramway lines. From this starting point, the new line runs underground about 200 yards, passing beneath the Potsdam Railway Station; thence mounting by a sharp gradient to a steel overhead construction, it continues southwestwardly about a quarter of a mile and crosses the Landwehr Canal. At this point, the line is divided by a very ingeniously constructed three-cornered switchback, one side of which curves at a radius of 90 meters (296 feet) and the other at a radius of 263 feet. From this junction one branch, all of elevated construction, extends eastward through a south-central and densely built industrial and commercial quarter to the Stralauer Gate, crossing the River Spree on a beautifully designed bridge of red brickwork, over which the electric line passes along a handsome arched viaduct about 20 feet above the roadway. This eastern branch is about 3½ miles in length, and has eight stations, two of which are located north of the river.

The other branch turns westward from the switchback junction and passes on overhead constructions of steel and masonry through

the Dennewitz platz, follows the Bülow strasse through a superb station at Nollendorf platz, and then, descending a sharp grade, passes through a tunnel nearly a mile in length which underlies Kleist strasse, Tauenzien strasse, passes round the Kaiser Wilhelm Memorial Church, and terminates for the present at a subterranean station adjacent to the Zoological Garden Depot of the overhead city and long-distance steam railroads. This western branch is being extended 2 miles farther to the Wilhelms platz, in Charlottenburg. It has at present five stations, two of which—Bülow strasse and Nollendorf platz—are overhead, the three others, including the two terminals at Potsdamer platz and the Zoological Gardens, are underground. The largest station on the entire system is the eastern terminal at the Warschauer Bridge. It is in the form of a curved viaduct, 300 meters (976 feet) in length by 27 meters (88 feet) in width, with three platforms, each 250 feet long. The line is double tracked throughout, and trains are run in either direction at intervals of five minutes during the busy hours of morning and evening, and at ten-minute intervals during the middle of the day and after 8 o'clock in the evening.

THE POWER SUPPLY AND EQUIPMENT.

Power is supplied by a plant located near the switchback junction already described. It includes three direct connected dynamos, each of 800 kilowatt capacity, driven by three steam engines, each having a normal efficiency of 900 effective horsepower and a speed of 115 revolutions per minute. The engines are supplied by six boilers of the Gehre type, which have each a heating surface of 234 square meters,* a superheating pressure of 10 atmospheres, and an hourly steaming capacity of 3,750 pounds. The furnaces are fed automatically from above with coal brought from canal boats by means of a Hunt conveyor.

The current is conducted to the cars by a third rail laid between the two inner rails of the double track and insulated from the steel superstructure by wooden blocks, interlaid with layers of felt. The trains are made up of three cars each, viz, a third-class car front and rear and one for second-class passengers in the middle. Both third-class cars are motor vehicles and seat 40 passengers each. The middle car seats 44 passengers, so that, as no standing in aisles or on platforms is allowed, the capacity of a train is limited to 124 passengers. The system of propulsion employed is that of locomotive control and would be probably considered somewhat antiquated in the United States, where the system of multiple units—trains made up wholly of motor cars all under control of one motorman—is now generally in use on all important, up-to-date lines. This permits

* 1 square meter=10.7642 square feet.

trains to be increased or diminished in length to fit the varying traffic at different hours of the day, and, by making each car self-propelling and independent when divided, eliminates the costly element of dead weight hauled empty at hours when it is not needed. It should be remembered, however, that in one respect—that of different classes—the conditions here are quite different from those in America, and this consideration was no doubt potent in determining the system of propulsion to be employed. In America, all passengers on the interurban railways are of one class, and each car can be made an independent unit; here, each train must have cars for at least two classes of passengers, and to meet this necessity the trains of the new Berlin line have been made up of three cars, as above described.

Each car is provided with pneumatic brakes, runs on two four-wheel spindle trucks, and every third-class car carries at one end three electrical motors of 71 horsepower each, which operate both axles of the truck. The motor car, with its complement of passengers, weighs about 26 metric tons.* The motors are designed for an average service speed of 30 kilometers (19 miles) per hour, with a practical maximum of 50 kilometers (31 miles), which is the limit of speed permitted on the line.

THE CONSTRUCTION OF STATIONS AND ELEVATED ROADWAY.

In the general plan, equipment, and application of electrical power to the working of this new line, little is presented which can be regarded as novel or especially suggestive to anyone familiar with the present condition of electrical elevated and underground city railways in the United States. The one respect in which the German constructers leave their American colleagues far behind and offer an object lesson which our countrymen can not study too soon or too thoroughly is in the artistic beauty, the architectural charm and sense of fitness, which they have imparted to the stations, the bridges, and even the ordinary overhead viaduct sections of the new road. Elevated railways in America are admittedly efficient and well managed; they run spacious, well-ventilated, comfortable cars at high speed for fares which are very low in comparison with carriages and other means of transportation. But they are for the most part plain and commonplace in appearance, and the stations, even in central and populous precincts, are often sheds which are considered blemishes to the neighborhood. Here, the requirements of public taste are never permitted to be neglected or forgotten. Where the new Berlin line passes through a public square, it is on solid and artistically designed masonry. The above-ground stations

* 57,320 pounds.

are of stone, steel, and glass, no two alike, but each specially designed to fit not only the requirements of traffic at that point, but the adjacent buildings as well—the architectural framework in which it is set. Where, for instance, shall we look outside of continental Europe for interurban railway stations like those at the Schlesisches Thor and the Nollendorf platz or a bridge like the Oberbaumbrücke, on which this new Berlin line crosses the Spree?

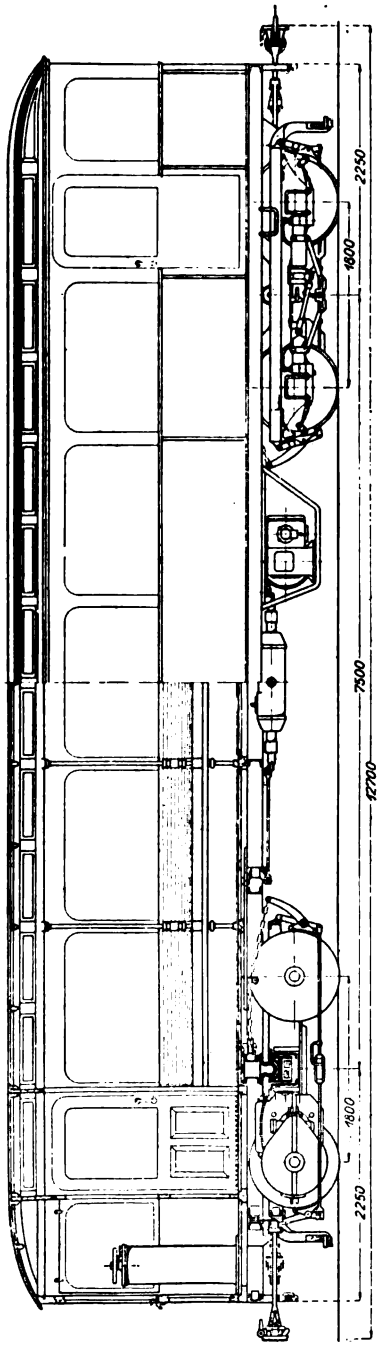
The whole management of the enterprise, from start to finish, illustrates the wise, firm control which the municipality of Berlin maintains over corporations which ask for franchises at its hands. As one example among many others of the result of such control, the western branch of the new line from Nollendorf platz to Charlottenburg passes through a series of broad, handsome boulevards in the new and choicest residence portion of the city. There was abundant room for a viaduct along the broad central esplanade between the driveways, and to have built it as such would have saved millions of marks. But the overhead construction, however artistically designed, and the roar and rush of trains would have defaced such a neighborhood, so the company was compelled to lower the grade from Nollendorf platz westward, underrun the boulevard, and keep out of sight and hearing thenceforward until the ultimate terminus at Charlottenburg. In running this tunnel past the Memorial Church, quicksands were encountered which could only be mastered by extensive and costly piling that involved months of unexpected delay, but the engineers and workmen persevered. That whole section of the line is now finished, the excavated channel walled, roofed with thick earth resting on steel girders or arches of masonry, and surfaced with graveled walks, to be planted with shade trees as before the work began.

The convenience and economy of time which will be secured by the new line to dwellers in the eastern and western portions of the city will be important. From Potsdamer Depot to the Zoological Garden Station, which now requires twenty-one minutes by the surface tramways, will be accomplished by the underground line in about ten minutes. From the Zoological Garden to the extreme eastern terminus of the Warschauer Bridge, which now requires fifty minutes by surface tramway and thirty minutes by the present Stadtbahn (elevated steam railroad), will be run by the trains of the new line, with stops at eight intermediate stations, in about twenty minutes. Through fares—third class—are fixed at 15 pfennigs (3¾ cents), but the rate for intermediate distances is 2½ cents, the same as on the electrical surface cars. Its trains will carry mail boxes and be used in collecting and distributing postal matter.

FRANK H. MASON,
Consul-General.

BERLIN, *February 21, 1902.*

THE POWER PLANT.



ELEVATION AND SECTION OF MOTOR CAR.

SECTION OF FINISHED TUNNEL.

STATION ON BÜLOW STRASSE.

BRIDGE OVER WHICH ELECTRIC LINE TRAVERSES ELEVATED TERRACE.

THE SLABY-ARCO WIRELESS TELEGRAPHY.

A few days ago, trial experiments were made in the harbor of Kiel of the Slaby-Arco and the Braun systems of wireless telegraphy. The former system is controlled by the Allgemeine Elektricitäts-Gesellschaft and the latter by Siemens & Halske, both of Berlin. The results of these experiments were in favor of the first-named system, which German experts claim is the only one which is able to compete with that of M. Marconi. There are forty vessels in the German marine fitted with the Slaby-Arco apparatus. Without question, the whole German fleet, naval and mercantile, will be supplied with such instruments before many years have passed.

I would advise anyone who is interested in the theory and practice of wireless telegraphy to write the Allgemeine Elektricitäts-Gesellschaft, of Berlin, for full particulars. An illustrated pamphlet has been issued by this company, which sets forth in detail all the advantages of the Slaby-Arco system, together with an exact description of the different apparatus. The company has written me that it will furnish the same, on application, to those who wish to inform themselves on the subject.

ERNEST L. HARRIS,
Consular Agent.

EIBENSTOCK, *March 12, 1902.*

OUTLOOK FOR EXPORT TRADE TO GERMANY.

A German merchant, who had spent three months in the United States seeking to form connections for the export of coal and other staple products to Europe, returned early in January unsuccessful and discouraged. In relating his experiences and the causes of his failure, he said:

The simple fact is that the American mine owners and manufacturers are so busy supplying the home demand that they have no surplus for export nor any time to talk about foreign trade. If I went to the office of a business man, I found him working at white heat; and if I stayed longer than three minutes, I could detect him glancing stealthily at the clock and impatiently wondering when I would go. I went the rounds of the companies who mine and handle the block coals of western Pennsylvania and Virginia, which of all American bituminous grades are the best adapted for export, and found that there was not a carload to be had at any price that would permit it to be exported. None of these companies could fully supply their American trade—all were more or less behind their orders—and complained that life had been made a burden by the lack of cars and the inability of the railroads to handle their freight. So, too, in iron and steel. I found no one with any to sell, but several parties who would gladly buy European structural steel, billets, and rails, provided the latter could be furnished in American sizes and profiles and delivered promptly. I tried to interest them about the German tariff and

reciprocity, but I found that they were too busy to talk, and knew or cared no more about the German tariff legislation than they did about the next proclamation by the Akhoond of Swat. We used to feel and act that way in Germany two or three years ago, and so I gave up the attempt to do business over there and came home to wait until the home-market pressure subsides a little and some of those brave, busy fellows will be hunting around for a foreign market into which to dump their surplus products.

The situation depicted in the foregoing interview has continued throughout the winter, and the American home market, so far from weakening, has grown so insistent and all-absorbing that the tide has turned westward, and not only pig iron, but steel billets, bars, and rails—notably the special kinds for street and suburban electric railways—are now being imported from Great Britain, Belgium, and Germany into the United States. One reads in the German newspapers of orders aggregating 150,000 tons of "Halbzeug," or partially manufactured steel, being placed in this country, with the effect of reviving prices and quickening the sluggish lifeblood of the Rhenish metal industries. The steel works at Differdingen have started up two additional blast furnaces and their new rolling mill to work out their share of the American orders. Under such conditions, there is naturally no question at present of any important export of bituminous coal, much less of iron and steel, from our country to Germany, and it may be of interest to look over the field and consider what, if anything except raw materials and food products, German importers at present need or will buy from the United States.

AMERICANIZED GERMAN INDUSTRIES.

Hitherto, and especially during the past ten years, our manufactured exports to this country have been largely included under the categories of machinery, machine tools, mechanics' tools, and miscellaneous hardware, bicycles, office furniture and fixtures, and, finally, factory-made shoes. In order to make clear the present condition of the German market for these products, a brief review of what Mr. Vanderlip calls "the Americanization of certain German industries," which has taken place since 1870, may be of pertinent interest.

It was about that time, or soon after the organization of the Empire, that Mr. Ludwig Loewe, a young and enterprising hardware merchant of Berlin, became impressed with the fact that American sewing machines were finding a large and constantly increasing sale in this country. He compared them with the homemade sewing machines, recognized their superior construction and finish, and determined to see how this was accomplished. He went to America, visited sewing-machine factories and other machine shops, saw the

work of automatic machine tools, doing with speed and unerring accuracy the shaping and fitting that had always been done by hand. He bought a complete outfit of American machines and tools, returned to Berlin, and established a factory, which proved the germ and inspiration of a new era in German manufacture.

That original factory has expanded until it includes, under management of the same daring and intelligent innovator, the Union Electrical Works, the vast private arsenal where the Mauser rifle is made by hundreds of thousands for the armies of many countries, and an immense machine shop and foundry of the most modern type, where hundreds of American machine tools—with an Allis engine driving one of the dynamos that generate electrical power for this vast equipment—have been employed during the past four years turning out lathes, milling machines, automatic screw cutters, planers, and stamping, punching, boring, and reaming machinery, all modeled exactly after the best American types, and in some cases embodying improvements upon the originals. When, in the summer of 1900, the Society of American Mechanical Engineers was brought here from Paris by Mr. Loewe in a special train and entertained for three days with princely hospitality, they said with entire frankness that nowhere in the United States had they seen a machine shop of more perfect plan and construction or containing so extensive and complete an outfit of the latest and most improved American machine tools. They found also everywhere about the place, as well as at the electrical works, American and German American foremen and skilled machinists, who had taught here the methods which they had learned at Providence, Paterson, Philadelphia, and Pittsburg. They saw the streets of Germany's capital traversed by electric street cars built by the "Union" and the General Electric Company, of Berlin, identical in every detail with those turned out by the great shops in the United States. Throughout all these establishments, which have in effect revolutionized certain industries in Germany, the American system of standard types with interchangeable parts, and to some extent the American method of treating workmen, have been introduced and permanently established. The Bergmann Electrical Works, of Berlin, is an example of a class of large industrial establishments founded in Germany during the past five years in which not only the machinery and tools are of American make, but the technical directors, many of the foremen, and even some of the workmen are either native or naturalized American citizens who learned their handicraft in the United States. At the Bergmann works, the operatives are classified and paid by the American factory system, and have even given up the 11 and 4 o'clock stops for beer and lunch which are customary in German workshops.

Not only this, but many large American establishments—the Garvin Machine Company, the Niles Tool Works, the Luxfer Prismatic Glass Company, and a dozen others that might be named—have organized companies here, largely with German capital, and have set up in newly constructed buildings, equipped with the latest American machinery, vast workshops for turning out their specialties of the most improved types, made from the same patterns and by the same processes as at home, and by workmen who earn a mark by the same labor that commands a dollar in the United States. The incomparable industrial and scientific schools of Germany have made not only skilled labor, but expert scientific research on industrial lines both excellent and cheap. The German workingman, even at his best, is inferior to the American in point of productivity—the amount of effective work which he can do in a day; but this difference in quantity ranges from 10 to 40 per cent only, which does not at all offset the much greater difference in wages. Something more of this disparity is made up by the throng of superannuated employees, which many German establishments are obliged to keep on their pay rolls, and who merely open doors, attend workmen's lavatories and wardrobes, and render other unproductive service. The extent of this burden, as it exists here, would be almost incredible to American employers, but it is a part of their system and they adapt their plans to it.

As a result of all this, Germany finds herself in this spring of the year of Grace 1902 fully equipped to supply not only her own needs in most kinds of machinery, but with a large surplus capacity for the supply of foreign countries. In all but the very latest American novelties—the inventions and improvements of the past three years—the Fatherland has ceased to be an importer and has become an exporter. The troops of German engineers and machinists who spent months at Chicago and in visiting factories and machine shops during the summer of 1893 brought home not only a practical knowledge of the machinery which was used and exhibited there, but of the products which that machinery was employed to produce; and this knowledge has since been utilized to revolutionize German standards of manufacture in respect to scores of articles of everyday use in household economy and the mechanic trades. Says an American merchant who has been located during the past five years at Hamburg and specially engaged in catering to this trade:

> The Germans have made wonderful strides and are steadily improving the quality of their goods, especially tools. There is no use trying to do business any more on staple articles, like hay and manure forks, saws, drills, etc. Such commodities of hardware are made here, if not as good, just as serviceable and at much lower prices, so that German goods in these classes rule the European market. Meat choppers, vegetable slicers, coffee mills, and other household machinery are

made here just as good as in the United States, and cheaper. First these articles were imported and imitated, then they were improved upon, and now they are furnished much handsomer and better than the original articles were. So the only chance for business is in practicable novelties, and I am going home to look around and see what I can find.

The foregoing letter—dated as late as March 6—describes the situation, so far as it goes, exactly as it exists. Not only have German manufacturers attained American standards of quality in a vast range of tools and articles of domestic use, but they have large stocks of such goods on hand, many of which they are willing to sell at the bare cost of production. Times are hard, trade dull, and retailers as well as consumers are powerfully attracted both by the superior cheapness of the homemade articles and by the fact that the money paid for them will be kept at home. In times of general depression, the patriotic instinct to aid one's neighbor by purchasing his product exerts a definite influence, and this is greatly strengthened by self-interest when the homemade article is cheaper in first cost than the imported.

In addition to all this, there remains the fact that as regards factory and shop machinery very little demand now exists here at any price. The capacity of manufacturing plants already in existence exceeds all present demand, and practically no new factories are being built. The same is measurably true of electric installations. Their contracts made in 1899 and 1900 are being worked out, but very few new ones are being taken in Germany, and much of the work now being turned out goes to Russia, Hungary, and other foreign countries.

American typewriters, office furniture, kodak-camera supplies, cash registers, time recorders, harvesting machinery, dental instruments and supplies, sewing machines, and a few other standard articles, which are made better in the United States than anywhere else, and have been introduced and pushed in European markets with consummate skill, energy, and long-sustained systematic effort—these are holding their own with but slight abatement from their sales of a year ago. But two large jobbing firms, which have for years past sold American machine tools, both on their own account and on commission, have closed up during the past three months, returned their stock to the makers, and gone out of business. As one of these merchants said sententiously, "It was a picnic while it lasted, but it is over now, and I am going back to the States."

From year to year, the number of minor specialties of American origin which have become established in Berlin increases perceptibly. American shoes are now securely introduced, and, notwithstanding the great progress made in the German shoe manufacture by American methods, are displayed and sold, not only by one large

handsome American shoe store, but by many prominent retailers throughout this city. American jewelry, the Columbia phonograph, the pianola, Tait's artificial diamonds, and the gramophone are among the more recent arrivals which have found a secure footing in the German capital. The Gamewell Fire-Alarm Telegraph Company, which exhibited at the firemen's exposition here last summer, is putting in a full equipment for the city of Hanover, and will probably establish a branch office in Berlin.

THE PRESENT DEMAND FOR AMERICAN GOODS.

It follows from all this that when the present stress of activity in the United States shall have so far subsided that certain manufacturers will begin to look again toward foreign markets, they will find in Germany a field distinctly more restricted, more sharply contested, and therefore less easy in some respects than it was two or three years ago. Not that there is any prejudice against things imported from other countries, least of all from the United States; on the contrary, American origin is recognized in many things as a certificate of high quality, a reputation which has been in some instances—notably in respect to bicycles—recklessly jeopardized by exporters who dumped discredited, low-grade trash upon the German market without regard to the inevitable consequences.

In other cases, deep offense has been given by the neglect of German orders on the part of certain American exporters in favor of their nearer and perhaps more profitable customers at home. As an example of this may be cited the case of a Hamburg commission merchant who, in the spring of 1900, took up the importation of American builders' hardware—hinges, bolts, locks, window fastenings, etc.—which is in many respects so superior to fixtures of the same class made and used in this country. He formed connections with two first-class manufacturers in New England, imported a full line of samples, and had a handsome portable cabinet made, with drawers and doors hung and equipped with the new hinges, locks, knob rings, etc. This he took with him on a canvassing tour to illustrate the superiority of the American fixtures to German hardware merchants. In the course of an extended trip through Germany, he placed twelve orders, some of which were for considerable amounts, and on one of which the buyer, in order to secure a prompt delivery, paid half the amount of the bill in advance. The orders were duly sent, but reached the manufacturers just in the busy days of April, 1901, when the demands of the home market were especially urgent. As a result not one of them was filled, letters and telegrams of inquiry were not even answered, and after waiting until June, the Hamburg merchant was obliged to refund the money that he had collected in

advance, acknowledge that he could not deliver the goods, and lose the whole expense of his trip and naturally all chance of doing any future business with the same customers. This was of course an extreme case, but it was one that the next salesman who comes to sell American hardware in Germany will hear of frequently in the course of his travels through this country. It illustrates again how little many American firms really care for an export trade, and how ready they are to sacrifice it whenever they can sell their produce at home.

WHAT THE GERMAN MARKET SEEMS TO WANT.

From what has been hereinbefore said, it will be apparent that aside from raw materials and food products, which Germany must have and buys where they can be had cheapest, and the standard manufactured specialties like typewriters, reaping machines, office furniture and fixtures, and certain other things which are produced better and more cheaply in our country than elsewhere, the principal demand in Germany is now for new goods, the novelties of many kinds which are produced by the restless, unsatisfied inventive American spirit, and for which Germany looks to the United States as for new fashions in dress to London and Paris.

Just what the most available novelties of the present season may be it is somewhat difficult at this distance to fully specify. Probably a good example of what is wanted would be the latest pneumatic tools, which have reached such perfection in the United States, but are comparatively unknown here. There is on the Prussian statute book an obsolete law which requires that every steam boiler shall be provided with a manhole by which it can be entered and inspected from within, and this, although enacted before the automobile had been thought of, prevents in effect the use of steam motor carriages in Prussia, although they are allowed under certain restrictions in Saxony and Bavaria. But steps have been taken to amend the Prussian law, and when that is done there will be an apparently good chance for the light, smoothly running, and serviceable steam carriages that sell for from $700 to $900 and are so widely used and popular in the United States.

American anthracite has been experimentally imported to Berlin during the past winter, but has failed of its expected success because it is harder than the Welsh coal, makes more ash but less clinkers, is less inflammable, and being, therefore, harder to kindle and more liable to extinction under reduced air supply, has not worked well in stoves and furnaces made for British anthracite. There would seem, therefore, to be an opportunity for a limited number of stoves adapted to the American fuel.

Artificial leather, for upholstery, bookbinding, etc., of the quality made in Boston and somewhere in Ohio, can also be successfully exploited here. It should be made in pieces from 50 to 100 yards long and from 1½ to 2½ yards wide. Samples from Boston have been shown and highly approved here, but are found rather small for general use.

Canned lobster is wanted everywhere, but there seem to be no efficient connections here between dealers and American producers. American canned lobster is preferred to that from any other source A merchant in this line states that orders could be taken here—are in fact waiting—for several thousand cases, provided a reputable American firm would accept cash on landing of the goods at Hamburg. These are the terms which German importers accord to exporters in Great Britain and other countries, and the persistency of Americans in insisting upon cash against bill of lading at New York or Boston kills millions of dollars' worth of trade every year.

There is also a fine field, hitherto almost uncultivated, for the sale of American cheese. The Germans are noted cheese eaters and import large quantities of expensive varieties from France, Switzerland, Austria, and Great Britain. English Chester costs about 20 cents per pound, while American dairy is quoted in the New York and other markets at 9 to 11 cents.

During the past year, a German dealer imported and sold readily about 10,000 pounds within three months, but on seeking to repeat his order experienced a long delay. The demand at home was so active that the American merchant received the repeat order, put it on file, but left it unfilled. If some capable exporting house will take up this trade and arrange to sell selected American cheese through an agency or local firm at Hamburg, the success of the venture would be assured.

Dried fruits, canned turtle meat, and high-class canned fruits from California are all in strong demand, and their import can be increased. American canned and dried fruits are now so well known and so popular in Germany that the demand is often in excess of the supply. During the past year, these products have been introduced as a very attractive feature in department stores, where they are sold at about two-thirds the retail prices charged by ordinary grocers. This has not only greatly increased the aggregate sale of such goods, but has made them accessible to a class of people to whom they were before unknown.

If there is a really good cheap typewriter made in America—a machine which is well made, durable, capable of doing clean, rapid work, and can be retailed at from $50 to $65—there is unquestionably a large and promising field for it in this country. The typewriter has just reached here the status of a universally approved

and appreciated adjunct of everyday life. Courts and other public offices are beginning to employ them, and their use is extending to all classes of business men, many of whom think they can not afford to pay $100 for a machine. Cheap machines have been made in great numbers, but they are generally so inferior to really first-class American-made ones that purchasers have become afraid of them. Two important requisites for this trade will be cheapness and that the writing shall be visible while the machine is at work.

There is some inquiry for American machines for carriage and wagon making. American-made vehicles have, for various reasons, never obtained any important foothold in Germany. The styles made in our country do not fit the tastes and social conditions that prevail here. But American hubs, spokes, fellies, and bent-wood materials generally are in high favor. The work of assembling the parts and finishing the vehicle is done by hand and old-time methods, which could be greatly aided by American machines.

Shoe-making machinery has revolutionized the whole shoe-manufacturing industry of Germany and is still in strong demand. Especially salable are any recent improvements which increase the efficiency of a machine or process now in use. Naturally, the economies of all such improvements will be used, as heretofore, against the shoe-export trade of the United States; but until German operatives attain a higher standard of productiveness than now, no effort of the manufacturers can under existing conditions of import shut the American-made $3 and $3.50 shoe out of the German market.

It is stated that most American shoe-machinery builders belong to a trust, which is arbitrary and expensive in its relations to the German trade. Manufacturers of such machinery outside of the syndicate can, if they will make the effort, do a flourishing business through miscellaneous machinery dealers in this country. There are also inquiries for the Northrop loom for weaving cotton and woolen fabrics. This is a specialty which should be managed by a direct agency.

Among the other articles most obviously in demand, all of which are recognized as standard American products, are cheap lawn-mowers, mulberry and prune shears, cheap guitars and zithers; cheap carpets, especially of the widths and qualities used for stairs and corridors; sugar of milk, an article largely used in Germany and of which the American quality is said to be better than those of Austria and the Netherlands, whence the present supply is largely imported; turpentine oil, which is also a prime article for Russia; small printing presses, especially those of most improved types for card and other small job work and embossing; and all novelties and improvements in the line of office furniture and equipment, which have come

into Germany with the typewriter and, by reason of their simplicity and efficiency in classifying and keeping in order the records and correspondence of an office, appeal strongly to the German love of system.

Finally, let the American who seeks to develop an export trade of anything to Germany remember that he is trying to be the seller; that in offering his goods to any foreign purchaser, the tastes and commercial ideas of that customer are entitled to a certain consideration; and that to insist always upon imposing American home conditions of payment at New York, in American currency, weights, and measures, while the goods are still on American soil, simply confirms the threadbare saying that with all their cleverness as manufacturers and caterers to their home market our countrymen are, with some notable exceptions, still in the kindergarten class as merchants in the large, international sense of that term.

FRANK H. MASON,
Consul-General.

BERLIN, *March 15, 1902.*

HOW TO INCREASE OUR TRADE IN GERMANY.

In a recent interview with a prominent merchant, I obtained data as to the expansion of our trade abroad, which I submit for the information of American exporters.

Our goods would experience an enhanced sale in many lines if they could be bought directly from stock kept on hand in foreign countries. This is especially true of articles not yet well known in the world's markets or which come from manufacturers who have transacted but a limited business abroad.

The long time necessary to obtain goods from the United States is an obstacle to our trade. Sometimes it takes three months from the date of order until the goods are received. If foreigners had the opportunity to see our superior articles and to get them at a reasonable price within a few days, sales would be much more easily effected.

There is great conservatism in trade here and many merchants will not change their sources of supply, unless they can do so without difficulty and delay. Others confine their purchases to such quantities as are needed for immediate use. In all these cases, a permanent stock in the principal centers of trade would be the best means of successfully introducing our goods.

Warehouses with great varieties of articles are doing an excellent trade here. To secure the best results, concerted action and systematic effort on the part of our exporters are needed.

CHARLES NEUER,
Consular Agent.

GERA, *March 3, 1902.*

No 261—02——5

GERMAN TRADE WITH THE UNITED STATES IN 1901.

The United States holds first place in the import trade of Germany and stands third on the list of countries receiving her exports, being surpassed only by Great Britain and Austria-Hungary, in the order named. According to recently published reports, German foreign commerce during the year 1901 suffered but slight diminution in the volume of exports and imports, compared with the preceding year, the former decreasing 1 per cent and the latter 3½ per cent. In value, the imports dropped off 1½ per cent, while the exports slightly advanced. The importation of American goods into Germany increased about 8 per cent compared with the previous year. On the other hand, there was a decline of not less than 18 per cent in German exports to the United States.

An unusually large quantity of American wheat was shipped to Germany, amounting to almost 1,250,000 tons, which was nearly three times as much as had been shipped the year before and double the amount imported in 1899. There was also a rather heavy importation of rye, though it did not by any means reach the figures of former years. Other grain and food supplies showed a decided decrease in the tables of imports. Barley, for instance, dropped to less than one-fifth the amount of former years, while the importations of bran shrunk to less than one-third. The most striking falling off was in corn, or maize, which, next to cotton, is the leading article of export from the United States to Germany. On account of the poor crop in America, Germany's imports, which for years have amounted to more than 1,000,000 tons per annum, were reduced fully one-third.

Of other agricultural products, cotton seed and especially linseed and rape seed were imported in larger quantities. The shipments of grass and clover seed, however, were considerably smaller, the latter being reduced to less than one-fifth. In spite of high prices, wheat flour more than held its own during the past year. The imports of cotton-seed oil, oleomargarine, and particularly oil cake, which have been growing considerably during the past few years, still further increased in 1901.

Compared with former years, there was less refined petroleum sold to this country, while crude mineral oils met with larger sales. Tallow and other refuse fats dropped considerably in the list of importations, but other animal products about held their own.

Of mineral products, the importation of copper, lead, iron, and other raw metals decreased enormously. Crude copper and crude

iron shrank more than a third and dropped to the level of 1896, while the importations of lead were reduced to about two-thirds of their former volume. In machinery, there was a decided decrease, especially in agricultural implements, and sewing machines suffered a reduction of about 25 per cent compared with the sales of former years.

American lumber and oak staves also show a very remarkable falling off. On the other hand, the importation of box and mahogany woods was almost trebled, and there was a great deal more cedar brought into this country.

The importation of meats and bacon was a trifle larger than heretofore, while canned meat and sausages entirely disappeared from the list, owing to the recent enactment of prohibitive laws. Lard did not reach its former volume. Dried fruit dropped considerably, and a slight decrease was also noticeable in the importation of tobacco. However, the amount of cotton sold to Germany remained about the same as in preceding years, namely, some 1,700,000 bales.

As to the exports from Germany to America, the most striking feature is the great decrease in the shipments of raw beet sugar. This loss amounted to more than two-thirds of the exports of the preceding year. In fact, the shipments were less than those of any year since 1895. Next to sugar, cement suffered most, showing a decrease of about one-half from the quantity shipped last year, and reaching a level not touched since 1890. But there was a very large augmentation in the exports from Germany to the United States in the line of potash salts, of which ever-increasing quantities have been shipped from year to year. In 1901, they reached the highest mark, with a gain of 25 per cent.

In consequence of the unprecedented demand for crude iron and steel in the United States, which the home production, great as it was, could not satisfy, there were many American orders placed with German firms for pig iron and steel, wrought-iron rails, wire, and general hardware; but in machinery, exports to the United States decreased.

It is also worthy of note that there were numerous shipments of Irish potatoes to the United States, about five times as much as in the year before. This is also true of pease and lupines.

The shipments of drugs and chemicals increased, particularly cyanide, alizarin, and indigo. Aniline dyes did not do as well. Textile goods of cotton, wool, and half silk dropped considerably, especially cotton hosiery. Fine leather goods also suffered.

While blown glassware shows a decrease, the sales of porcelain were greater, especially of dinner sets, etc. In the manufacture of

paper, there was less cellulose, as well as finished goods, sold to the United States. An increase is noted in the exportation of pelts and hides, especially of calf and goat skins. The export of polished rice, which had been depressed for years, showed a revival. Butter, wines, and toys of various kinds were fully as active as ever before.

To summarize, the increase in the shipments of wheat from the United States to Germany, valued at not less than $25,000,000, more than covers the loss in the shipments of corn, copper, iron, machinery, etc., but German exports show no such redeeming figures. The decline in sugar alone amounted to almost $10,000,000, to which is to be added a loss of about $5,000,000 worth of exports of textiles, leather goods, etc.

The foregoing data are summarized from an elaborate official report published in the Monatliche Nachrichten ueber den auswaertigen Handel des deutschen Zollgebietes, which is issued by the Imperial Statistical Bureau, Berlin.

HENRY W. DIEDERICH,

BREMEN, *February 28, 1902.* *Consul.*

NEW GERMAN MEAT-INSPECTION LAW.*

It is officially announced in the Reichsblatt that paragraph 21 of the new law regulating the inspection of cattle intended for slaughter and inspection of meat will go into force on October 1, 1902.

This paragraph provides that no substances or processes of any kind shall be applied to the preparation of meat intended for sale which shall make it injurious to health. The importation of such prepared meat from a foreign country is forbidden and no traffic in it is permitted.

The chemical substances which are considered deleterious are: Boracic acid and its salts; formaldehyde, alcali hydrooxide or carbonate; sulphuric acid and its salts, as well as hyposulphites; fluor acid and its salts; salicylic acid and its combinations; and chloric-acid salts.

These provisions of the law also apply to the use of coloring stuffs for meats and meat products. However, the yellow coloring of margarin and the colors applied to the coverings of sausages are excepted.

TALBOT J. ALBERT,

BRUNSWICK, *February 26, 1902.* *Consul.*

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*Reports on the same subject have been received from Consul-General Guenther, of Frankfort, and Consul Langer, of Solingen.

OREGON SALMON IN GERMANY.

During a recent conversation with a hotel proprietor of this city, I learned that Oregon salmon was sold in Germany to a very limited extent. This gentleman believes that a large business can be done in this particular fish, if special attention is given to transportation. He said he had eaten the fish in Magdeburg and Hanover and found it delicious. Inquiries as to price showed that Oregon salmon could be bought for 1.40 marks (35 cents), while German salmon costs at the present time 5 marks, or about $1.25 per pound. He also stated that the fish were frozen in Oregon and shipped in this frozen state to Europe. It is claimed that, if thawed in cold water and then cooked, the fish retains its flavor.

If the above is correct, there can be no doubt that this Empire would make a very good market, as there is hardly any fish worth eating that can be had here for less than 40 cents per pound. The packers of Oregon salmon should look into this matter. A distributing house could be established in Hamburg or Bremen which would attend to the shipping of the fish to the inland German cities and towns. I inclose a list of fish used in this market, with prices.

J. F. MONAGHAN,
Consul.

CHEMNITZ, *March 14, 1902.*

Wholesale prices of fish sold in Chemnitz, Germany.

Description.	Price.	Description.	Price.
Live.	*Cents.*	*Fresh, in ice*—Continued.	*Cents.*
Carp.....per 1.1 pounds...	27	Haddock.....per 1.1 pounds...	6 to 10
Tench .....do.....	33 to 36	White fish.....do.....	6 to 10
Pike .....do.....	24	*Smoked.*	
Eels .....do.....	40 to 43	Salmon.....per 1.1 pounds...	67
Fresh, in ice.		Eels.....do.....	29 to 38
Turbot.....per 1.1 pounds...	43	Sprats.....do.....	14
Sole .....do.....	38	Pickled herrings.....each...	2
Red sole.....do.....	12 to 15	*Salted.*	
Zander .....do.....	14 to 19	Herrings .....each...	2
Tench .....do.....	14 to 17	Brieslings.....per 1.1 pounds...	4
Pike .....do.....	16	Herrings, cut.....do.....	5 to 6
Plaice (fish).....do.....	12		

MANUFACTURE OF ROSARIES IN THE TYROL.

The following report on the manufacture of rosaries was made to a continental newspaper by its correspondent in the Tyrol:

In the parishes of Mieming and Rietz, the members of nearly every household are engaged in the preparation of rosaries, through the stringing together of beads. Every person of the female sex, old or young, spends her spare time in this manner,

and the number of such workwomen in Mieming may be estimated at 140, while Rietz may be said to contribute 40 and Barwies 30, to the approximate total of 310 persons employed in this district. The employers of this labor are, in the majority of cases, tradesmen residing in Innsbruck. The materials are procured from France and Germany. The workwomen are paid by the piece and receive for stringing a dozen rosaries of the ordinary kind from 10 to 13 kreutzers (4 to 5.3 cents), while in the case of those which require more delicate handling as much as 40 kreutzers (16 cents) per dozen is paid, after the cost of all spoilt material has been deducted.

The employers dispose of the rosaries to a certain extent in their own places of business, but a great many are sent to various parts of the country, the chief trade being done with Hungary. Many of the workwomen are engaged in the manufactories at Telfs, and these may be seen stringing beads on their way to and from their work. The earnings of these workwomen vary from 80 to 160 crowns ($16.24 to $32.48) per annum.

E. THEOPHILUS LIEFELD,

FREIBURG, *March 20, 1902.* *Consul.*

FORESTRY IN SAXONY.

The Kingdom of Saxony is divided into twelve principal forest districts, which are subdivided into one hundred minor districts. The following table* speaks for itself:

Principal districts.	Income.	Expenses.	Value of forests.	Dividends.
				Per cent.
Dresden	$112,312.70	$57,758.95	$3,234,253.00	1.69
Moritzburg	89,929.85	48,044.42	3,491,388.00	1.2
Schandau	353,335.36	127,773.11	10,066,185.00	2.24
Grillenburg	200,421.70	74,296.10	5,057,721.00	2.45
Tharandt	13,727.52	7,133.81	396,184.00	1.29
Bärenfels	334,701.10	95,362.12	7,274,692.00	3.3
Marienberg	436,286.03	121,016.12	11,283,580.00	2.79
Schwarzenberg	535,287.01	135,471.65	10,257,204.00	3.9
Eibenstock	384,646.04	112,691.90	8,779,320.00	3.13
Auerbach	361,884.86	141,871.72	7,364,981.00	2.90
Zschopau	206,383.03	85,725.15	5,541,759.00	2.18
Grimma	218,061.22	88,219.80	6,791,132.00	1.94
Total	3,246,976.42	1,005,364.85	79,538,399.00	*2.71

*Average.

The net profit was $2,241,611.57.

Saxony possesses one of the best-regulated systems of forestry in the world. The school of forestry at Tharandt, in the vicinity of Dresden, has sent and is still sending out some of the best-prepared foresters in Germany. Under their supervision, the forests of Saxony serve not only the purpose of giving the State a substantial annual revenue, but they add a thousandfold to the scenery of the

*The table is compiled from the latest statistics (1898) published in the Tharander Forstlisches Jahrbuch. It must be borne in mind that these are only for the forests owned and managed by Saxony, the forests of corporations and individuals not being included.

country, thus attracting many tourists into these parts every summer. The most important feature of the forests, however, is the fact that they keep forever alive the fountains of water which spring from the highlands of the Erzgebirge and Saxon Switzerland. The forests furnish the material and the water the motive power to hundreds of pulp, paper, and saw mills, which in turn give employment to thousands of men, women, and children.

For the benefit of students of forestry in America, I give the scheduled list of subjects taught in the Academy of Forestry at Tharandt: Chemistry, physics, mineralogy, zoology, mechanics, geology, mathematics, botany, surveying, history of forestry, forestry in all its different phases, and game and fish laws. In connection with these lectures, excursions are frequently made into the forests to study the different woods, rock formation, and soil. Actual practice is in every case united with theoretical work.

There is some talk at present of removing the academy from Tharandt to Leipzig, in order to absorb it in the university. It is claimed that the students would thus have an opportunity of hearing a broader course of lectures, while materially lessening the cost of maintaining the institution. It remains to be seen, however, whether this plan will be carried out.

ERNEST L. HARRIS,
Consular Agent.

EIBENSTOCK, *March 14, 1902.*

PHOTOGRAPHERS' EXHIBIT AT DÜSSELDORF.

I have received a letter from Mr. K. Schwier, of Weimar, president of the German Photographers' Union, in which he says:

The kindness which you have shown in past years to the exhibitions of the German Photographers' Union, as well as the interest bestowed by various American colleagues on the annual exhibitions of the German Photographers' Union, encourages me to request you again, through your CONSULAR REPORTS, to draw the attention of the photographers in the United States to our exhibition, which takes place at Düsseldorf this year.

The thirty-first meeting of the German Photographers' Union will be held at Düsseldorf, August 11 to 15. The exhibition connected with it will be open some weeks longer. It is to be held at the Kunstgewerbe Museum, where first-class rooms have been put at our disposal. Our exhibition will again be endowed with gifts and prizes of honor and arranged in about the same style as the former exhibitions.* The offers for the best exhibits will be the same; also the regulations regarding rent for space. You will see that we especially grant our friends, the members of the Photographers' Association of America, the same advantages which we grant to members of the German Photographers' Union, and I trust that this will encourage colleagues there to send their exhibits. At the Weimar exhibition,

*See ADVANCE SHEETS No. 750; CONSULAR REPORTS No. 239.

several members of the American association won prizes, and they will surely feel inclined to send their exhibits to Düsseldorf also, where this year a large attendance of foreigners of all nations is expected, owing to the general industrial and professional exhibition of Rhineland and Westphalia.

The thirty-four prizes offered consist of medals, objects of art, and cash.

Rent is charged for exhibition space as follows:

For members of the German Photographers' Union and the Photographers' Association of America—

Table, wall, or floor space of—	Rent.	
	Marks.	
5 square meters (5.9 square yards)....per square meter*...	5.00	$1.19
10 square meters (11.9 square yards)....do....	6.00	1.43
15 square meters (17.8 square yards)....do....	8.00	1.90
20 square meters (23.8 square yards)....do....	10.00	2.38

* 1 square meter = 1.196 square yards.

For other exhibitors—

Table, wall, or floor space of—	Rent.	
	Marks.	
5 square meters (5.9 square yards)....per square meter...	7.50	$1.78
10 square meters (11.9 square yards)....do....	9.00	2.14
15 square meters (17.8 square yards)....do....	12.00	2.85
20 square meters (23.8 square yards)....do....	15.00	3.57

This exhibition is of great importance for both amateur and professional photographers, and it is hoped Americans will avail themselves of the opportunity offered to compete with foreign exhibitors.

Intending exhibitors should address Herr K. Schwier (the president), Weimar.

THOS. EWING MOORE,
Consul.

WEIMAR, *March 8, 1902.*

REGULATING TRUSTS IN GERMANY.

Consul W. Schumann, of Mainz, March 25, 1902, informs the Department that the Prussian Government has lately taken steps to investigate the trusts and syndicates located in the Kingdom, and a circular has been sent to the presidents of the various gubernatorial districts, asking the names and memberships of trusts located in the several districts, the nature and value of the production, the reasons for forming the trusts, their objects, the regulation of price and output and division of spheres of operation, their statutes; what agreements have been made with other trusts; what effect their formation

has had on other trusts and industries, on the cost of production, and on prices; how the sale is regulated; how export prices compare with those asked in the home markets; if export premiums are granted; if the dividends, value of stock, etc., of the various companies forming the trusts have increased or not; what methods are employed to fight the competition of concerns outside of the trusts; what contracts are made with customers; the influence of the trusts on wages of workmen and on trade unions.

It would be interesting, says the consul, to be able to study the replies to the foregoing questions, but it is hardly probable that the Government will make known the results of this circular rogatory.

PRODUCTION OF GERMAN MINES AND SMELTING WORKS IN 1901.

The Vossische Zeitung, of Berlin, of March 22, contains an article with reference to the production of German mines and smelting works in 1901, from which I have taken the following data. A considerable decrease in quantity, compared with 1900, is apparent in iron ores, the ores of precious metals, pyrites (Schwefelkiess), and petroleum. The production of coal was within a fraction of 1 per cent of that of 1900. The production, in tons of 2,204.6 pounds, was:

Description.	1901.	1900.	1899.
	Tons.	*Tons.*	*Tons.*
Anthracite coal	108,417,029	109,290,237	101,639,753
Soft coal	44,211,902	40,498,019	32,204,666
Salt	985,919	926,563	861,123
Kainite	1,500,748	1,227,873	1,108,159
Other potash salts	2,036,326	1,822,758	1,384,972
Petroleum	44,095	50,375	27,027
Ores:			
Iron	16,570,258	18,964,294	17,989,635
Zinc	647,496	639,215	664,536
Lead	153,340	148,257	144,370
Copper	777,339	747,749	733,619
Silver and gold	11,576	12,593	13,506
Pyrites	157,420	169,447	144,623

The production of coal, which increased steadily between 1890 and 1900 (from 70,000,000 to 109,000,000 tons), shows for the first time a decrease of about 870,000 tons, or four-fifths of 1 per cent. The value of the anthracite coal produced in 1901 has, however, increased, owing to the very high prices in the first half of the year, being 1,015,000,000 marks ($239,190,000), against 966,000,000

marks ($229,908,000) in 1900 and 498,000,000 marks ($118,524,000) in 1893, having more than doubled in eight years.

The average value of a ton of anthracite coal in 1901 was 9.36 marks ($2.23), against 8.84 marks ($2.10) in 1900, 7.77 marks ($1.85) in 1899, and 7.57 marks ($1.80) in 1898.

The production of soft coal increased by 3,750,000 tons; in value, by 11,000,000 marks ($2,618,000).

The large decrease in the production of iron ores (2,400,000 tons) is due to the depression in the metal industries. The production of iron, zinc, etc., in tons of 2,204.6 pounds, was:

Description.	1901.	1900.	1899.
	Tons.	*Tons.*	*Tons.*
Raw iron	7,835,204	8,494,852	8,117,594
Zinc	166,283	155,790	153,155
Lead	123,098	121,513	129,225
Copper	31,376	30,929	34,634

The production of precious metals was as follows:

Description.	1901.		1900.		1899.	
	Kilograms.	*Pounds.*	*Kilograms.*	*Pounds.*	*Kilograms.*	*Pounds.*
Silver	403,796	890,209	415,735	916,529	467,590	934,849
Gold	2,755	6,074	3,055	6,735	2,605	5,783

The production of raw iron in 1901 shows a decrease of 660,000 tons, or 7.8 per cent, compared with 1900; but while it was also less than in 1899, it still considerably exceeds former years.

Ten years ago, the production of raw iron was 4,640,000 tons, 41 per cent less than in 1901.

The value of raw iron in 1901 decreased more than the quantity. It was 488,700,000 marks ($116,310,600), against 549,100,000 marks ($130,685,800) in 1900, a decrease of over 60,000,000 marks ($14,300,000), or 11 per cent. The value of a ton of raw iron in 1901 was 62.38 marks ($14.85), against 64.64 marks ($15.38) in 1900 and 55.95 marks ($13.32) in 1899. The value of products of raw iron was:

Year.	Cast iron.		Wrought iron and steel.		Iron and steel ingots.	
	Marks.		*Marks.*		*Marks.*	
1901	262,700,000	$62,522,600	117,800,000	$28,036,400	796,700,000	$189,614,600
1900	333,400,000	79,349,200	173,800,000	41,364,400	953,000,000	226,814,000
1899	316,800,000	75,398,400	183,400,000	43,649,200	835,400,000	198,825,200
1898	268,400,000	63,879,200	154,800,000	36,842,400	705,200,000	167,837,600
1897	241,100,000	57,381,800	147,000,000	34,986,000	606,900,000	144,442,200
1896	219,900,000	52,336,200	147,700,000	35,152,600	539,600,000	128,424,800
1894	168,400,000	40,079,200	126,800,000	30,178,400	385,900,000	91,844,200
1892	158,500,000	37,723,000	162,000,000	38,556,000	335,900,000	79,944,200

The value of cast iron produced in 1901 decreased 70,700,000 marks ($16,826,600), or 21 per cent, compared with 1900.

Wrought iron and wrought steel fell off 56,000,000 marks ($13,328,000), a decrease compared with all previous years since 1892.

The production of iron and steel ingots (Flusseisen and Flussstahl) decreased 146,300,000 marks ($34,819,400), or 15.4 per cent, compared with 1900.

These figures, the paper states, show that the German iron industry is much depressed.

RICHARD GUENTHER,
Consul-General.

FRANKFORT, *March 25, 1902.*

COAL, STEEL, AND IRON PRODUCTION OF FRANCE IN 1901.

Statistics of the production of coal, steel, and iron in France during 1900 and 1901 have been recently published by the Minister of Public Works. The figures of the former year have been corrected and are definite; those for 1901 are provisional.

COAL.

The production of anthracite and bituminous coal in France in 1901 was 31,613,036 metric tons,* a decrease of 1,108,526 tons as compared with the previous year. The statistics do not separate the anthracite from the bituminous coal, but the amount of anthracite mined was comparatively small, being not over 450,000 tons, .82 per cent of which came from the Department of Isère. Sixty-three per cent of the output of bituminous coal was produced in the Departments of Pas-de-Calais and Nord, the Department of Loire coming next with a little over 12 per cent.

The production of lignite in 1901 was 688,721 metric tons, an increase of 5,985 tons as compared with 1900. Ninety-one per cent of the total output of lignite was mined in the Departments of Bouches-du-Rhône, Basses-Alpes, and Vaucluse.

The total production of mineral combustibles in France for 1901 was 32,301,757 tons, a decrease of 1,102,541 tons as compared with 1900. The above figures are grouped in the following table:

Production in France for the years 1900 and 1901.

Description.	1900.	1901.	Increase.	Decrease.
	Tons.	*Tons.*	*Tons.*	*Tons.*
Anthracite and bituminous	32,721,562	31,613,036	.....	1,108,526
Lignite	682,736	688,721	5,985	.....
Total	33,404,298	32,301,757	.....	1,102,541

* 1 metric ton=2,204.6 pounds.

The coal imports, exports, and consumption in 1900 and 1901 are shown in the following table:

Coal imports, exports, and consumption in 1901 and 1900.

Description.	1901.	1900.
	Tons.	*Tons.*
Stock in Government warehouses on January 1	195,499	147,833
Imports of coal (commerce général)	13,775,560	14,363,726
Production of coal and lignite	32,301,757	33,404,298
Total	46,272,816	47,915,857
Exports of coal (commerce général)	2,107,350	2,411,033
Balance	44,165,466	45,504,824
Stock in Government warehouses at end of December	201,467	195,499
Consumption	43,963,999	45,309,325
Decrease	1,345,326	.....

From the above, it will be seen that the estimated consumption of coal in France during 1901 was nearly 44,000,000 tons, a decrease of over 1,300,000 tons as compared with the estimated coal consumption of 1900.

The falling off in the consumption and production of coal in 1901 was due to the unfavorable condition of French industries.

IRON.

The production of pig iron in France during 1901 was 2,400,240 metric tons, a decrease of 314,058 tons as compared with the previous year, as shown in the following table:

Production of pig iron in France during 1900 and 1901.

Description.	1900.	1901.	Increase.	Decrease.
	Tons.	*Tons.*	*Tons.*	*Tons.*
Refined iron (fonte d'affinage)	2,166,505	1,803,615	.....	362,890
Pig iron, first fusion	547,793	596,625	48,832	.....
Total	2,714,298	2,400,240	.....	314,058

The principal centers of production were the Department of Murthe-et-Moselle, with 1,444,855 tons; Nord, with 266,570 tons; Saône-et-Loire, with 91,250 tons; Pas-de-Calais, with 84,961 tons; Landes, with 78,863 tons; and Gard, with 68,599 tons.

There were 554,309 tons of manufactured iron produced in France during 1901, a decrease of 153,965 tons as compared with the year 1900. Of the total output, there were 315 tons of iron rails, 501,928 tons of commercial iron, and 52,066 tons of sheet iron. The details

of the iron production in 1901 and the comparison with 1900 are shown in the following table:

Production of iron rails, sheet iron, etc., in 1900 and 1901.

Description.	1900.	1901.	Decrease.
	Tons.	*Tons.*	*Tons.*
Rails	627	315	312
Commercial iron	640,953	501,928	139,025
Sheet iron	66,694	52,066	14,628
Total	708,274	554,309	153,965

The Department of Nord leads in this production, with 217,173 tons; then follow the Departments of Ardennes, with 64,504 tons; Haute-Marne, with 57,206 tons; Seine, with 31,524 tons; and Murthe-et-Moselle, with 29,761 tons; the rest of the output being distributed among thirty-three other Departments.

STEEL.

The total output of steel in France during 1901 was 1,151,170 tons, a decrease of 75,367 tons as compared with the steel production of 1900. There were 296,431 tons of steel rails produced, an increase of 18,237 tons over 1900; 580,376 tons of commercial steel, a decrease of 91,001 tons as compared with 1900; and 274,363 tons of sheet steel, a decrease of 2,603 tons.

The details of the steel output are shown in the following table:

Steel production of France during 1900 and 1901.

Description.	1900.	1901.	Increase.	Decrease.
Rails:	*Tons.*	*Tons.*	*Tons.*	*Tons.*
Bessemer	270,958	272,147	1,189	.....
Siemens-Martin	7,236	24,284	17,048	.....
Total	278,194	296,431	18,237	.....
Commercial steel:				
Bessemer	362,730	280,803	.....	81,927
Siemens-Martin	281,525	274,841	.....	6,684
Puddled or forged	5,863	4,998	.....	865
Tool steel	1,155	920	.....	235
Crucible steel	16,600	12,693	.....	3,907
From scrap steel	3,504	6,121	2,617	.....
Total	671,377	580,376	2,617	93,618
Net decrease	.....	.....	.....	91,001
Sheet steel:				
Bessemer	68,616	75,492	6,876	.....
Siemens-Martin	205,095	196,721	.....	8,374
Others	3,255	2,150	.....	1,105
Total	276,966	274,363	6,876	9,479
Net decrease	.....	.....	.....	2,603

Résumé.

Description.	1900.	1901.
	Tons.	*Tons.*
Rails	278,194	296,431
Commercial steel	671,377	580,376
Sheet steel	276,966	274,363
Total production	1,226,537	1,151,170
Decrease		75,367

In the following table is shown the Departments in France in which the greater part of the steel output was produced:

Department.	Rails.	Commercial steel.	Sheet steel.	Total.
	Tons.	*Tons.*	*Tons.*	*Tons.*
Meurthe-et-Moselle	119,873	137,864	24,390	282,127
Nord	44,000	93,902	88,700	226,602
Saône-et-Loire	1,733	49,970	34,275	85,978
Loire	128	45,111	22,268	67,507
Seine-Inférieure	17,859	14,813	31,031	63,703
Gard	48,793	10,678		59,471
Pas-de-Calais	28,289	27,378		55,667
Allier		46,564	3,279	49,843
Landes	33,003	15,460		48,463
Ardennes		21,812	19,707	41,519

A. M. THACKARA,

HAVRE, *March 27, 1902.* *Consul.*

DUTIES ON PETROLEUM IN FRANCE.

The French Chamber of Deputies, on the proposition of the Government, has adopted a tax of 1 franc (19.3 cents) per quintal (220.46 pounds) on the crude petroleum imported by refiners. The measure, which the Senate is likely to ratify, strikes a blow at the considerable profits which the present duties insure to certain large refiners.

The great oil producers are Russia and the United States, while other countries—Austria, Roumania, Java, Borneo—produce but small quantities. France produces no petroleum. For the purpose of commerce, the oil has been classed under three heads: heavy or lubricating oil, lamp oil, and essence employed chiefly for automobiles.

Imports of petroleum into France from the United States began in 1863, when a tax of 68 cents per quintal was imposed on the refined product; the crude petroleum was admitted free. In 1871, the terror inspired by the Commune, which so freely used petroleum in

its destructive work, influenced the Deputies to vote a tax of $3.86 per quintal on the crude article. The refiners took advantage of this tax to bring up to $6.18 the duties on refined oil, which gave them a protection of $2.32 per quintal. In 1881, the consumption having greatly developed, the difference was reduced to $1.35 (in spite of the protests of the refiners), and in 1893 the duty was made $1.74 on crude petroleum and $2.41 on the refined oil. While the importation of refined remained about the same, that of the crude oil went from 194,400 tons in 1892 to 340,000 tons in 1900; that is to say, the difference of 67 cents between the duties was sufficient to allow the refiners considerable profits.

In 1900, the quantity of crude petroleum imported from the United States was 270,000 tons; from Russia, 65,700 tons. The duty paid by the refiners amounted to $5,727,468. The refiners have formed a powerful syndicate by which to-day they control the market. Those who attempt to compete by importing refined petroleum direct have been almost invariably ruined.

From the foregoing, it will be observed that the price at which petroleum is delivered to the consumer depends entirely on the customs duty on refined petroleum. At present, the consumer in France pays for oil 1 cent more a liter* than if free entry to the refined quality from America were granted. In countries such as Belgium and Germany, where no protective duty on refined petroleum exists, the oil is sold much cheaper.

The statistics used in this report are extracted from articles by M. Berthelot, an authority on the subject, whose lengthy discussions have appeared in Le Matin, of Paris.

HILARY S. BRUNOT,

ST. ETIENNE, *March 20, 1902.* *Consul.*

FRENCH SHIP SUBSIDIES.

After a discussion running through several months in the French Parliament, the Senate has finally adopted with a few changes the bill passed by the House† regulating the subsidies to be paid to the merchant marine of France. This measure is a remodeling of the law enacted in 1898, which has done little if anything toward increasing the amount of steam tonnage and the volume of marine traffic. The new measure is a return to the half-bounty system applied to foreign-built steamers, which was originally introduced in the law of 1881. That measure gave great satisfaction to shippers, but was generally opposed by shipbuilders. The latter interest succeeded in

* 1 liter=1.05 quart.

† See ADVANCE SHEETS No. 1267 (February 17, 1902), for text of law.

having it repealed in 1893; but, notwithstanding this repeal, French shipowners continued to have their ships built abroad, and shippers therefore insisted on a bounty per mile for freight carried in foreign-built ships flying the French flag.

The new law is limited to a duration of ten years with a payment of subsidies for twelve years.

For sailing vessels, the bounty has been kept at 27 cents for ships below 600 tons, but reduced to 1.93 cents per 100 tons or fraction thereof for sailing ships above this burden up to 1,000 tons. This was intended to check the construction of large sailing ships.

The bounty for building is left as in the old law, namely, 65 francs ($14.54) per gross ton on the hull and 15 francs ($2.89) on every 220 pounds of engines and boilers used in the steamers.

In a report from this consulate on the French merchant marine, published in the ADVANCE SHEETS OF CONSULAR REPORTS under date of January 10, 1899,* I quoted from the Moniteur Marine to show that the cost of building a ship in France was 83 per cent greater than in England.

The same conditions apply to-day. The heavy cost of building a ship in France proves the necessity of permitting their purchase abroad. Most of the shipyards in France are adapted only to building dredges, coasting craft, and ships of small tonnage. For the building of large merchant ships, there are the following yards in France:

(1) The Compagnie Générale Transatlantique at St. Nazaire, employed chiefly on the steamers of the company.

(2) The Messageries Maritimes, which work only on their own ships.

(3) The shipyards of the Gironde at Bordeaux, which make a specialty of war ships.

(4) At Nancy, where small steam and trading ships (sailing) of a maximum of 3,000 tons are built.

(5) At Paris and the Department of the Seine and at Lyons, which confine themselves to special work.

(6) The Norman shipyards at Rouen, established since 1893. Two steamships and a number of sailing craft have been turned out of Rouen in the last few years.

(7) There are also the Forge shipyards of the Mediterranean and the shops of the Loire, each owning two important navy-yards.

Writers have lamented the fact that in France enterprise was devoted entirely to sailing ships. It has been pointed out that while France in one month built 25,600 tons of sailing craft, England built only 2,693 and Germany 150. During the same month, France

*ADVANCE SHEETS No. 320; CONSULAR REPORTS No. 222.

built steamships aggregating 50,000 tons and England built 1,360,000 tons and Germany 144,000 tons.

It is estimated that France pays annually to other nations the sum of 240,000,000 francs ($46,320,000) for freight which her own ships ought to transport. But however efficient her merchant marine, France will continue to pay freight to the nation that supplies her with coal. She buys several million tons of coal every year from England, Belgium, and Germany, and when the ships bring it to Marseilles, Havre, Bordeaux, or Brest, as their voyage one way has been paid, they can carry return freights at rates which can not be equaled by French bottoms. The nation, then, that supplies France with coal will get the return freight, whatever bounties may be given to stimulate shipping.

JOHN C. COVERT,
Consul.

LYONS, *March 20, 1902.*

FRENCH METHODS OF PEANUT CRUSHING.

The following is a copy of a report made by Consul-General Skinner, of Marseilles, in answer to inquiries by an American correspondent:*

In my first report on this subject,† the statement will be noted that the kernels are freed from the red cuticle by a winnowing process before being sent to the presses, and it is not surprising, therefore, that in the American experiments following publication of the report, in which the opposite method was adopted, the oil acquired a bitter flavor. In Marseilles, this red skin is never crushed with the kernel, except in the case of a new crop, when the skin clings so tenaciously as to render complete removal difficult; but even then effort is made to get rid of it, and it may be set down as an axiom that a good comestible oil can not be obtained from an untreated kernel. The process of the removal of this kernel is mechanical as followed in this city, where the cost of labor is relatively high, but Mozambique nuts are received here in large quantities, which are decorticated by hand at the port of shipment and from which the red skin is completely removed by the native laborer. These yield an edible oil, which is worth to-day from 74 to 75 francs per 100 kilograms ($14.28 to $14.47 per 220 pounds), naked, first pressure.

The nuts, having been prepared, are twice crushed—that is to say, the pressure is applied twice, and often three times, although at times the second pressure takes place without removal of the meal

* To whom the original has been sent.

† ADVANCE SHEETS No. 680 (March 17, 1900); CONSULAR REPORTS No. 236 (May, 1900).

from the press. Different manufacturers follow different methods, some of them removing the meal after the first pressure, breaking it up and then returning it. In most factories, the meal is placed in horsehair bagging, and in some few it is placed in steel boxes without any wrapper, following the American practice. The first pressing, from which results the high-grade oil, is cold, but for the second pressing the meal is brought to a temperature of from 30° to 50° C., according to the condition and quality of the nuts; the degree of moisture and temperature is left to the discretion of the foreman in actual control. The same amount of pressure is applied on both occasions. Two standard sizes of presses are used in Marseilles, in one of which the hydraulic pressure is 500 kilograms per square centimeter of piston—that is to say, about 500,000 kilograms (1,102,300 pounds) force. With the smaller presses, the pressure is exactly half of the foregoing. In the case of the large machines, the pressure continues for thirty minutes, and in the case of the smaller double that time.

The yield of oil from decorticated peanuts from the Madras coast, which constitute the largest import for the Marseilles soap trade, is from 39 to 40 per cent of their weight. The resultant cake contains from 7 to 9 per cent of oil.

The price of the oil depends largely upon the purpose for which it is intended. As the market stands to-day in this city, oil from Madras decorticated nuts, utilized by soap manufacturers, brings 58 francs per 100 kilograms ($11.19 per 220 pounds), naked, first pressure, delivered to buyers' stores. The finest edible oils are obtained from nuts imported in the shell, these coming from the west coast of Africa, chiefly from Ruffisque and Gambia. Oils from these nuts are worth to-day from 75 to 80 francs per 100 kilograms ($14.47 to $15.44 per 220 pounds), naked, first pressure. As I said before, hand-decorticated Mozambique nuts give an oil now worth from 74 to 75 francs ($14.28 to $14.47). The second-pressure oil from Ruffisque, Mozambique, and Gambia nuts, which is suitable for illuminating purposes, is worth from 68 to 70 francs per 100 kilograms ($13.12 to $13.51 per 220 pounds).

Groundnut cake brings from 12.75 to 13 francs ($2.46 to $2.50) per 100 kilograms at mills, or 13.25 to 13.50 francs ($2.55 to $2.60) delivered f. o. b. Marseilles in bulk—that is to say, without bags. There is usually a difference of 3 francs per 100 kilograms (58 cents per 220 pounds) in this market in favor of groundnut cakes over cotton-seed cakes. The latter are worth to-day, delinted, 10 francs ($1.93) per 100 kilograms at mills.

Marseilles oil cakes are sold almost exclusively for cattle feed. The statement brought to my attention that the meal is used in some

European countries and in the German army as a diet for convalescents, I know nothing whatever about; but I doubt whether a demand for such supplies amounts to anything commercially. As a good staple diet for cattle, oil cakes of nearly every description have a recognized value in Europe and are perhaps more keenly appreciated here than in the United States.

Reports just to hand from the Madras coast are in favor of a large crop for the present season, estimates of the exports reaching 1,000,000 bags. Should this figure be reached, the entire exportation, at 80 kilograms (176 pounds) per bag, would give a total of, say, about 100,000 tons of decorticated nuts, which, reckoning the yield of oil at 40 per cent, would give about 40,000 tons of peanut oil. Up to date, about 650,000 bags have already been sold to Marseilles for shipment from December, 1901, to April 30, 1902. Last prices paid were 25.75 to 26 francs ($4.97 to $5.01) per 220 pounds, cost and freight at Marseilles, landing weights. The value of Mozambique decorticated nuts is 34 to 34.50 francs per 100 kilograms ($6.56 to $6.65 per 220 pounds) delivered on the landing quay at Marseilles. The soap mills of Marseilles consume on an average 3,000 to 3,500 tons of groundnut and other seed oil per month, and about the same quantity of copra and palm-kernel oil.

EXTRACTION OF OIL BY CHEMICAL PROCESS.

I am in receipt of a letter from certain American manufacturers of various corn products,* asking for information concerning the extraction of oil by the naphtha and steam process, my inquirers stating that this process and the machinery necessary therefor have been in use in France for a long time, and that they have not been able thus far to ascertain the location of such plants, or the addresses of manufacturers of the machinery.

It has been known for many years that various greases and oils become soluble upon being combined with sulphide of carbon, benzine, and gasoline. This knowledge has been used in a practical way in this country for thirty years in the treatment of olive pulp and kernels, and for over ten years in the treatment of vegetable-oil cakes. The pioneers in this business were extremely successful, as they were able to procure practically unlimited quantities of olive pulp and stones, hitherto valueless, from which they extracted a merchantable oil. Their success was so great that nearly all the local oil crushers were led to undertake treating their seed cake in the same manner, and for ten years the business has been carried on with

* To whom advance copy of this report has been sent.

comparatively little change in the method employed. The mechanical appliances necessary are about the same, whatever solvent be employed. In this city, the use of gasoline, or petroleum essence, as it is called in France, has been abandoned for a number of years, because of the cost of this material, in favor of sulphide of carbon. The latter is manufactured in this city on a large scale from raw material found close at hand. The petroleum-essence process is still in use at Havre, where Messrs. Desmarais frères have very large works, which they operate in connection with their petroleum refinery. Being themselves producers of the essence, they are in a more favorable position to use this solvent than the manufacturers in the south. The greater danger involved in the manipulation of petroleum essence has also operated against the extension of its use. While explosion is liable to occur in the handling of sulphide of carbon, also, its presence is more readily discernible on account of its odor, and it is said to be more easily controlled.

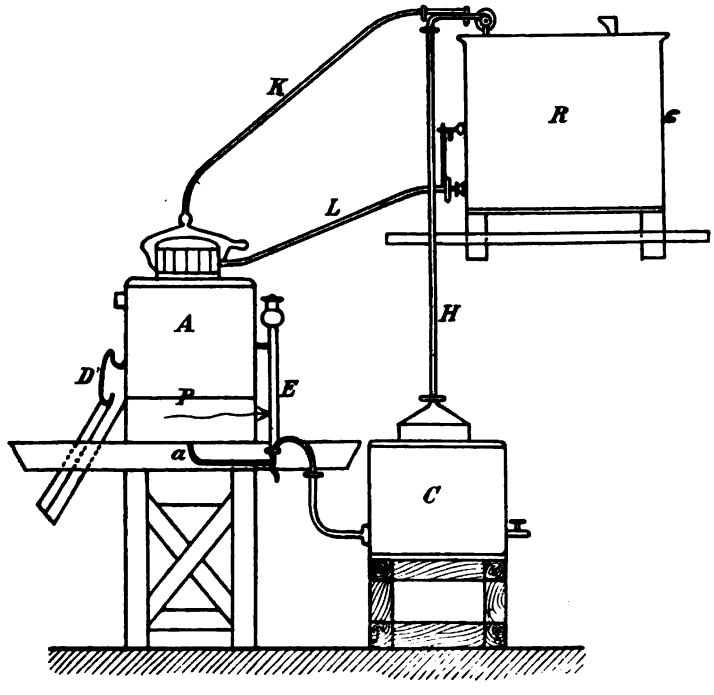
The most complete plant for the treatment of oil cakes in this manner is conceded on all sides to be that of Messrs. C. A. Verminck & Co., of Marseilles. It was built by Messrs. B. & A. Bezer, 7 rue Forbin, Marseilles, and could probably be duplicated for about $16,000. All the plants now in use have been constructed to order, and there is no means of obtaining satisfactory information under this head. The manufacturers of the Verminck plant, to whom I am indebted for much valuable information, feel that it would be impossible to export the huge vats and other portions of the machinery to the United States, but would probably consider with favor a proposition to furnish working plans and the smaller portions of the machinery necessary.

In the new Verminck plant, the production of oil has been greatly simplified by doing away with the two and occasionally three separate pressings of the raw material, whereby several grades of oil were secured, in favor of one application of very high pressure, leaving a cake containing from 12 to 14 per cent of oil. While the one pressing makes it impossible to obtain a very high grade of comestible oil, this loss is made up for by the excellence of the product as a whole. The ordinary oil cake is then broken up into pieces about as large as hazelnuts and dumped into a vat in quantities of 30,000 kilograms (66,138 pounds) at a time. The plant is capable of treating 100,000 kilograms (220,460 pounds) of oil cake per day. Equal quantities of oil cake and of sulphide of carbon are required, in order that the remaining oil may be successfully extracted. The net loss of the sulphide of carbon is one-half of 1 per cent of its weight—that is to say, 500 kilograms (1,102 pounds) per day—and to keep the plant going successfully, a stock of 150,000 kilograms

(330,690 pounds) is constantly available. The sulphide of carbon is most largely manufactured in this city by the Société Marseillaise de Sulfure de Carbon, a corporation which not only sells the material, but also treats the oil cake of local manufacturers. The average price of the chemical varies from 25 to 30 francs ($4.82 to $5.79) per 100 kilograms (220 pounds), and I am told that it costs to manufacture not more than 15 francs ($2.89), leaving a very satisfactory margin—so satisfactory, indeed, that Verminck & Co. are erecting their own plant for the production of the sulphide of carbon, expecting to be able to supply themselves and the trade generally.

The oil produced by the chemical treatment is usually taken up by the soap trade, and its color and odor readily distinguish it from the oils obtained by the application of pressure. The oil obtained by the naphtha, or petroleum-essence, process does not give out this odor, and it has a better color. The remaining pulp, or meal, after the extraction of the oil, is immediately dried, in order to prevent fermentation, and sold in sacks for fertilizing purposes. The ruling prices are considerably below those paid for oil cake. In England, the meal is sold for feeding purposes and is said to give satisfaction, although this is improbable, and is certainly not true in Marseilles.

I give a rudimentary sketch of the mechanical arrangements necessary for the use of sulphide of carbon or petroleum essence.



The raw material is emptied into the tank or basin *A*, and falls upon the false bottom *P*. An equal quantity of the solvent enters the tank through the tube *L* from the reservoir *R*. From *E* steam is conducted through coils under the false bottom *P*, and brings the mixture to a boiling point. The oil remaining in the cake is immediately relieved and rises to the surface with the boiling sulphide of carbon. The vapor arising from this hot mass is carried off through the tube *K*, to be eventually cooled down and returned to the reservoir *R*. When the boiling process has continued a sufficiently long time, the liquid is drawn through the tube *a* and kept hot by passing through steam coils and finally lodged in the second tank *C*, in which the temperature is brought to such a point that the dissolvent is converted into vapor, passing upward through the pipe *H*, to be condensed and discharged into the reservoir *R*, leaving the oil and a small portion of the dissolvent which fails to pass off as vapor in the bottom of the receptacle. At this point, live steam is introduced, which frees the oil completely from the small remaining quantity of sulphide of carbon, after which the oil itself is easily drawn off into a receiving tank. Live steam also frees the pulp in the tank *A* of the small amount of sulphide of carbon remaining, after which it is discharged at *D*.

Thus it will be seen that the process is not a continuing one, but by the use of a series of tanks and the proper connections, Verminck & Co. succeed in making the system practically continuous, obtaining the maximum results with a minimum expenditure of chemical matter. While this explanation is very elementary, it covers all the essential points in the manufacture of oil by this process, as carried on in this country.

ROBERT P. SKINNER,
Consul-General.

MARSEILLES, *March 13, 1902.*

A NEW BRIDGE FERRY AT NANTES.

With the construction of new quays along the south side of the north branch of the River Loire, the building of a bridge at their terminus near Prarie au Duc becomes imperative. The State Railway Company has extended its tracks along these quays and is about to construct large freight depots on a tract of land reclaimed from the river. At present, freight cars can only be transferred from the State railroad on the south side of the river to the Orleans line on the north by crossing a bridge some distance above the city. This not only requires several hours' time, but involves much expense. It is not possible to construct an ordinary bridge at the point above indicated without interfering with navigation. The

buildings on each side of the river are too close to the quays to permit approaches sufficiently high to allow ocean vessels to pass under the bridge, nor would a drawbridge prove practicable on account of the constant passage of small boats. The question has finally been settled by the letting of a contract for the construction of what is known as a "pont à transbordeur." This bridge, or ferry, will consist of two steel towers, one on each side of the river, connected by a horizontal railway. An inverted steel truck will travel along the rails, and suspended from it by steel cables is a platform, which will constitute the ferry. One part of this platform will be used for transporting railway cars, wagons, and horses; the other part will be set aside for foot passengers. The ferry, or "nacelle," will be operated by an electric motor mounted on the truck and will travel on a level with the quays. The passage will be made in one minute. The ferry platform will be 40 feet square and will have a maximum capacity of 60 tons. The bridge, or horizontal rails, supporting the platform will be 487 feet long and 162 feet above the water. The entire structure will cost $199,000 and will be completed next year.

The bridge is expected to be a paying investment as well as a great convenience. Thousands of workmen employed in the shipyards and residing across the river will use it; it will also convey an immense amount of heavy traffic. Foot passengers will be charged 1 cent each; one-horse carts, empty, 5 cents; carts with two horses, 7 cents; one-horse carts, loaded, 8 cents; two-horse carts, loaded, 10 cents; loaded wagons, 12 cents. The last named often weigh from 5 to 7 tons.

The patent for this style of bridge is owned by Monsieur F. Arnodine, and the work of construction is under the supervision of Monsieur V. Baudine.

JOSEPH I. BRITTAIN,

NANTES, *March 1, 1902.* *Consul.*

CENTRIFUGAL GOLD WASHER IN FRANCE.

A novel machine for recovering gold and other precious metals from auriferous sands, clay, mud, and slime deposits has proved a success in this city.

This washer is essentially a centrifugal turbine revolving at a speed of from 400 to 600 revolutions a minute; at least 200 revolutions a minute are required for good work and a greater speed increases the production.

The apparatus is a kind of bucket, in the shape of a cone, revolving round a vertical axle. The lower part of the cone, being the

smaller, is completely closed, and the upper or larger part is not entirely open, but supports a flat, circular rim.

A funnel is placed around the axle, through which the water and material to be treated are fed, bringing the same to the bottom of the revolving centrifugal cone, before being affected by its momentum. As they reach the bottom, they immediately receive the centrifugal force; the lighter materials and water are carried upward and out of the cone over the rim; the heavier materials are deposited along the sides of the centrifugal cone, and are gradually carried up the same until they are collected under the rim, where they are prevented from escaping with the lighter matter and water; so all the materials of great specific gravity and value are retained in the centrifugal cone, while the waste materials are passed off.

These machines have been in operation at the works of L'Horme, near St. Etienne (Loire), France, where auriferous sands were treated and a saving of 98 to 99 per cent was effected with very little expense of water. The amount of gravel treated was 2 tons per hour in a washer 8 inches in diameter.

Less than one minute is required to stop the operation, clean out the gold, and put the machine into operation again.

This gold washer can be used in all gold-bearing placers, gravel, sands, clays, mud, slimes, etc., and the quantity of water required in its operation can be limited to simply moistening the material treated.

The machines require very little power, and can be constructed for convenience of transport so that no one part will weigh more than 60 pounds.

In this process, no quicksilver is used, and all the rusty, float, and flake gold is saved, as well as the very fine gold.

Further particulars will be given by the inventor, Mr. Paul Maurice, 8 rue Buisson, St. Etienne, France, or by Mr. C. C. King, 23 boulevard des Italiens, Paris.

HILARY S. BRUNOT,

ST. ETIENNE, *March 6, 1902.* *Consul.*

FRENCH WRITING SYSTEM FOR THE BLIND.

In 1829, the Braille machine made reading possible to the blind. This machine is composed of a metal frame with a movable copper reglet, which slides across the frame. This reglet is pierced at regular intervals by little holes in squares of six; there are twenty-four squares on the reglet and each square is susceptible of forming a letter.

In order to write, a thick sheet of paper is placed on the frame

between the reglet and a sheet of zinc, on which are depressions corresponding to the little holes in the reglet. The writer uses the left hand as a guide and, with a pointed instrument that he passes into the holes of the reglet, forms depressions in the paper that appear in relief on the opposite side. These dots form the letters. When one line is finished—that is, when he reaches the end of the frame—he moves the paper and begins another line, and so on, indefinitely.

Since the characters must be read on the opposite side from the one on which they are formed, the writing must be from right to left. The blind must learn two alphabets—one for the formation of letters from the wrong side and one for reading them from the right. As the sheet of paper is fastened to the frame, it must be removed to correct a mistake.

A new invention permits the blind writer to write as he reads—from left to right. He can thus correct as he writes, without displacing the paper. He has but one alphabet to learn, which he can acquire in six lessons.

Mr. Dussaud, the inventor, uses the pointed instrument and reglet for writing, but instead of passing through the holes into depressions in the paper below, this instrument simply presses on small mobile keys, which are hollow, and in their turn press on raised metal points, which take the place of the hollows in the zinc plate of the Braille machine. The characters formed are thus in relief on the side of the writer, who can verify his writing without displacing the paper.

In addition to the above advantages, the blind can calculate arithmetically, which was not possible under the Braille system. There is no metal plate and the paper is much thinner. The machine can be folded and carried in the pocket, and it is considered a great boon to the blind.

W. P. ATWELL,

ROUBAIX, *March 18, 1902.* *Consul.*

FRENCH AUTOMOBILE DIRECTORY.

Consul Haynes sends from Rouen, March 12, 1901, in response to inquiries by a number of business firms in the United States,* the following list of manufacturers of automobiles and parts thereof in France:

Manufacturers.

Agence Générale des Automobiles (F. Charron, Girardot, et Voigt), 45 avenue de la Grande-Armée, Paris.

L'Aster, 33 cours Benoît, St. Denis.

Amédée Bollée fils, Le Mans (Sarthe).

*ADVANCE SHEETS have been sent to the parties desiring the information.

Berliet, 1 rue Paul-Michel-Perret, Lyon.
Brouhot et Cie., 166 quai Jemmapes, Paris.
Comptoir Parisien, 71 avenue de la Grande-Armée, Paris.
Cormery-Renard, Baugé (Maine-et-Loire).
Cie. des Automobiles Hurtu, 49 rue de Villiers, Neuilly-sur-Seine.
Cottereau et Cie., Dijon (Côte-d'Or).
Dalifol et Cie., 229 boulevard Pereire, Paris.
A. Darracq et Cie., 33 quai de Suresnes, Suresnes.
H. Deckert, 20 rue Bacon, Paris.
De Dietrich et Cie., à Lunéville.
De Dion et Bouton, 24 qua National, Puteaux.
Delahaye et Cie., 10 rue du Banquier, Paris.
Eldin et Lagier, 21 place Bellecour, Lyon.
Etablissements Montauban et Marchandier, 33 avenue Faidherbe, St. Quentin (Aisne).
L. Fisson, 14 rue Maublanc, Vaugirard.
Fouillaron, 54 rue de Villiers, Levallois-Perret (Seine).
Gillet, Forest et Cie., 23 quai Carnot, St. Cloud (Seine-et-Oise).
Gladiator, au Pré-St. Gervais.
Gobron et Brillié, 13 quai du Boulogne, Boulogne-sur-Seine.
Hanriot frères et Cie., 11 rue Descombes, Paris.
Hautier, 13 rue Théophile-Gautier, Paris.
Henriod, 18 rue du Marché, Neuilly (Seine).
Latil, 15 boulevard Rabatan, Marseilles.
Léon Lefebvre, 87 avenue de la Grande-Armée, Paris.
Vve. Levassor, 38 rue de Chanzy, Paris.
Mors, 48 rue du Théâtre, Grenelle.
Mutel et Cie., 124 rue St. Charles, Paris.
Panhard et Levassor, 19 avenue d'Ivry, Paris.
Ch. Pantz, Pont-à-Mousson, Paris.
Peugeot, à Audincourt (Doubs).
G. Richard, 23 avenue de la Grande-Armée, Paris.
Riégel, 39 avenue de Breteuil, Paris.
Renault frères, 139 rue du Point-du-Jour, Billancourt (Seine).
Rochet-Schneider, 57–59 chemin Feuillat, Lyon.
Salleron, 41 rue St. Ferdinand, Paris.
Ch. Schmid, Bar-le-Duc (Meuse).
Société Decauville, 13 boulevard Malesherbes, Paris.
Société des Automobiles Valée, 60 rue de l'Australie, au Mans (Sarthe).
Société Anonyme Auto et Traction, 1 quai National à Puteaux.
Société La Française, 11 rue Brunel, Paris.
Serpollet, 9 et 11 rue Stendhal, Paris.
Turcat-Méry, boulevard de Mazarques, Marseilles.
Turgan, Foy et Cie., 102 rue Carnot, Levallois (Seine).
Vinet, 61 rue de Villiers, Neuilly.
Werner frères, 40 avenue de la Grande-Armée, Paris.

Manufacturers of accumulators.

Accumulateur Compound, 28 bis rue des Arts, Levallois.
Accumulateur Dary, 33 et 35 rue Perrier, Levallois.
Accumulateur Fulmen, 18 quai de Clichy, Clichy (Seine).
Accumulateurs Union, 27 rue de Londres, Paris.
Heinz et Cie., 16 rue Rivay, Levallois.

Manufacturers of tires.

Bandes-Kelly, 179 rue de la Pompe, Paris.
Chameroy, route de Sartrouville, Le Vésinet (Seine-et-Oise).
Continental Caoutchouc et Gutta-Percha Cie., 18 rue Brunel, Paris.
Dunlop-Pneumatic, 29 avenue de la Grande-Armée, Paris.
Edeline, 33 quai National, Puteaux.
Falconnet, Perodeaud et Cie., Choisy-le-Roi (Seine).
Michelin, 105 boulevard Pereire, Paris.
G. Vinet, 61 rue de Villiers, Neuilly-sur-Seine.

Manufacturer of carburetors.

Lonquemare, 12 rue du Buisson-St. Louis, Paris.

Carriage makers.

Belvalette frères, 24 avenue des Champs-Elysées, Paris.
Bergeon, 17 rue Esprit-des-Lois, Bordeaux.
Boulogne et fils, 144 boulevard Haussmann, Paris.
C. Felber, 40 avenue des Champs-Elysées, Paris.
Hannoyer, 38 rue Foquet, Levallois (Seine).
Henry Binder, 31 rue du Colisée, Paris.
Jeantaud, 51 rue de Ponthieu, Paris.
Kellner, 125 avenue Malakoff, Paris.
Labourdette et Cie., 183 rue de la Pompe, Paris.
Muhlbacher, 63 avenue des Champs-Elysées, Paris.
J. Rothschild et fils, 131 avenue Malakoff, Paris.
Védrine et Cie., Courbevoie (Seine).
Wherlé et Godard-Desmaret, 114 bis Bineau, Neuilly.
Vinet, 61 rue de Villiers, Neuilly.

Manufacturers of coolers.

Apprin, 27 rue de l'Abondance, Lyon.
Grouvelle et Arquembourg, 71 rue du Moulin-Vert, Paris.
Loyal, 204 rue St. Maur, Paris.

Books.

Les Recettes du Chauffeur, by Baudry de Saunier; 400 pages; price, 10 francs ($1.93).

Manuel Pratique du Conducteur d'Automobiles, by Pierre et Yves Guédon; price, 6 francs ($1.15).

Le Carnet du Chauffeur, by Henri de La Valette et Lucien Périssé; price, 3.50 francs (67 cents).

Conseils Pratiques du Constructeur et Conducteur de Cycles et d'Automobiles, by H. de Graffigny; 350 pages; price, 4 francs (77 cents).

Guide de Route, concerning the driving and care of the Dion-Bouton automobile; 250 pages; 7.50 francs ($1.44).

Les Secrets de Fabrication des Moteurs à Essence pour Motocycles et Automobiles, by Georgia Knap; in press; 3d edition.

La Voiture de demain, by John Grand-Carteret; 440 pages; illustrated; price, 5 francs (96 cents).

Traite de la Construction, de la Conduite et de l'Entretien des Voitures Automobiles, by Milandre et Bouquet. First volume: Eléments de Construction; price, 4 francs. Second volume: Voitures à Vapeur; price, 2 francs (38 cents). Third volume: Voitures à Pétrole; price, 2.25 francs (43 cents). Fourth volume: Voitures Electriques; price, 4 francs (96 cents).

L'Automobile Théorique et Pratique, by Baudry de Saunier. First volume: Motocyles et Voiturettes; price, 12 francs. Second volume: Voitures à Pétrole; price, 12 francs ($2.31).

Connaissances Pratiques pour Conduire les Automobiles, by Michotte; 264 pages; price, 3 francs (57 cents).

Les Moteurs Modernes, by Michotte; 4 francs (96 cents).

Manuel Théorique et Pratique de l'Automobile sur Route, by Gérard Lavergne; price, 17.50 francs ($3.15).

Les Automobiles Electriques, by Sencier et Delasalle; 400 pages; price, 15 francs ($2.89).

The prices mentioned for the above books, says the consul, do not include postage. Any of them can be had from La Locomotion Automobile, 4 rue Chauveau-Legarde, Paris.

CLAY-WORKING INDUSTRIES OF FRANCE.*

ROUEN.

Consul Haynes says:

BRICK.

The burnt clay used here for building purposes comprises the following: Plain, ordinary brick; hollow, perforated, tubular brick; facing brick; vitrified brick; floating brick; tiles, ordinary and black; flagstone; "tuyaux," or burnt tubing, for canalization of gas and liquids; and burnt earth for decoration of buildings.

Brick molding.—The clay for molding brick is sometimes prepared by handmills, but this method has become too slow and tedious, and horsepower is used almost exclusively. The mills in this section, when driven by horsepower, produce from 1 to 2 cubic yards of clay per hour. Instead of being fashioned into brick immediately upon issuing from the mill, the clay is taken to a table by which the molder stands. The mold is soaked in water or sprinkled with sand to keep the clay from adhering thereto.

It is a common sight in Normandy to see women and children carrying clay to the molders' table and taking it away in the form of green brick.

The number of brick turned out by a molder, under favorable conditions, will run from 600 to 700 per hour. In this district, machine-made brick has not reached any great development. The machine is only used where the output is more than 10,000 brick per day.

Brick drying.—There are four processes of drying: Air drying; in isolated or grouped shelves; in ventilated rooms; and in ventilated and heated kilns. The last method is mostly used, the fuel

*Reports made in answer to inquiries by the editor of an Indiana journal, who has received advance copies.

being oil, lignite, and peat. It takes from 75 to 110 pounds of oil to burn properly 1 metric ton (2,204.6 pounds) of brick, according to the consistency of the clay and the degree of temperature.

Dimensions of brick.—French brick are of the following dimensions:

District.	Size.	
	Centimeters.	*Inches.*
Burgundy	22 by 11 by 5.5	8.66 by 4.33 by 2.165
Marseilles	22 by 11 by 5	8.66 by 4.33 by 1.967
	22 by 11 by 7	8.66 by 4.33 by 2.76
Paris	22 by 11 by 6.5	8.66 by 4.33 by 2.56
Vaugirard	22 by 11 by 6	8.66 by 4.33 by 2.36
Proposed by Ceramic Union	22 by 10.5 by 5.5	8.66 by 4.13 by 2.165
Proposed by architects of the Nord	22 by 10.5 by 6	8.66 by 4.13 by 2.36

Cost of production.—The cost of making brick in Rouen and vicinity varies from 4 francs (77 cents) to 8 francs ($1.54) per metric ton (2,204.6 pounds).

Brick-machine makers.—Some of the principal manufacturers of brick machinery in France are: Chambrette Bellon, Bèye, Côte d'Or; Boulet et Cie., Paris, Seine; E. Delahay, Tours, Indre-et-Loire; G. Pinette, Chalon-sur-Saône, Saône-et-Loire; Chavassieux Long, Marseilles; Davidsen, Paris; and Dalbouze, Paris.

ROOFING TILES.

Round tiles are very much used in southern Europe. The length varies from 15 to 20 inches, and the greatest width is from 7 to 8½ inches. This gives a very heavy covering, but has the advantage in warm countries of preserving the building against too much heat.

Black tiles.—There are four ways in France to make tiles black—coloration of the clay with oxide of manganese, immersion in tar, baking in an atmosphere charged with hydrocarburet, and baking in the presence of pulverized carbon. The most common form employed is that of plunging the tile in some tarry liquid which has a temperature of 50° or 60° C. (122° or 140° F.). The general belief is that the tar does not improve the resistance of the tiles to the temperature.

Burning tiles.—In burning, as in the burning of brick, great care is exercised to keep the ashes from coming in contact with the tiles. The manner of placing the tiles in the kiln depends upon their shape, and particular care is exercised to prevent their warping, while at the same time they are put in as small space as possible, with sufficient opening to assure circulation of gas and flame. Different kinds of fuel are employed, but gas is preferred, on account of easy regulation of temperature and absence of ashes.

Value of tiles.—The value of tiles in the Rouen district is two and a half to three times greater, with equal weight, than that of common brick. The well-known Angers machine-cut roofing tiles are listed as costing 52 francs ($10.04) per thousand; with sides rounded, 62 francs ($11.97) per thousand.

The proper clay for the manufacture of tiles is not widely scattered in the north of France. The expense of transport is very high, compared to the value of the product, yet the manufacturers are able to send their output to quite a large radius, some being even exported. Small manufacturers—those who do not employ fire kilns continuously—are rare, owe their existence to local conditions, and are becoming fewer and fewer. Most of the large manufactories are located near the clay beds, and it is exceptional that clay is carried to be worked up at the centers of consumption.

Tile makers.—The following are the names and addresses of the tile makers in this Department—Seine-Inférieure:

Rouen: M. L. Olivier, 74 rue de Centrale; M. Fd. Limare, 32 Brampe St. Hilare; M. Fontaine, 19 rue de l'Industrie.

Havre: M. Fanchon, 91 rue J. Lecesne; M. H. Derret, 10 à 32 Duquay-Trouin.

Dieppe: M. Lucas, à Janval; Le Gros fils, Caude Côte.

PORCELAIN MANUFACTURE.

Porcelain was first manufactured in France at Vincennes. In 1730, the proprietors of the Vincennes works moved to Sèvres, where they established a manufactory which Louis XV bought in 1739, and it has since remained the property of the State. The output of this establishment has long been celebrated in Europe for its beauty of material, purity of design, elegance of form, and richness of ornamentation.

In France, there are three principal centers of porcelain manufacture: Limoges (Haute-Vienne), Berry, and Paris and environs. The first, Limoges, is probably the greatest of these, and has been especially productive for the last few years. Last year, it had 380 more furnaces than in 1900, and each month of the year (1901) showed a superior production to corresponding months of any preceding year. The total number of furnaces in Limoges in 1901 was 3,380, as compared with 1,956 in 1889.

Sèvres porcelain.—Sèvres is a soft, vitreous porcelain. In 1884, the manufacturers of Sèvres, after long and tedious research to find a porcelain which would take decoration better than hard porcelain, and be capable of receiving the blue turquoise of copper, produced a new kind of pottery to which has been given the name of Sèvres. The glass composition of this, after being heated and pulverized in

water, gives the following: Silica, 77; lime, 10.3; potash, 5; soda, 7.7. It then enters into the composition of the following clay: Sand of Fontainebleau, 49.02; glass, 27.45; chalk, 16.66; Dreux clay, 6.86. After baking the composition becomes: Silica, 80.31; alumina, 2.62; potash, 13.27; lime, 1.5; soda, 2.3.

Hard porcelain.—The fabrication of hard porcelain is centered in France, with rare exceptions, in the Departments of Haute-Vienne and Cher. In Germany, the industry is more scattered, but the principal centers of production in that Empire are in Saxony, Bavaria, and Bohemia. The industry exists also in Belgium, Denmark, Russia, Italy, China, Japan, and the United States. Hard porcelain is not manufactured in England.

It is said in France that to manufacture 1 kilogram (2.2046 pounds) of porcelain, 8 kilograms (17.6 pounds) of raw material must be used.

The chief coloring matters employed in France in the decoration of hard porcelain are:

Blue: Oxide of cobalt, the tint being varied with a mixture of chrome or oxide of uranium.

Gray: Oxide of iridium and platinum, the tint being usually rendered more agreeable by oxide of cobalt.

Yellow: Oxide of uranium.

Brown: A mixture, in varying proportions, of chromate of iron and oxide of manganese.

Rose: A mixture of anhydrous alumina and chromate of potassa.

Fire porcelain.—In France, this is the name given to all porcelains in which liquids are heated. This fire porcelain is used in laboratories and for domestic use, such as evaporators, retorts, crucibles, saucepans, etc.

The composition of the clay differs but little from that of other hard porcelains; it is, however, less silicious and more aluminous. The following is the composition of the fire porcelain of Bayeau, which has a high reputation in France: Silica, 61.61; alumina, 30.01; oxide of iron, 1.56; lime, 3.56; potash, 3.26.

FRENCH FAÏENCE.

The pastes or bodies of fine French faïence are composed of pure white clay, of kaolin, sand, and flint. Common faïence has for its elements marly sands and common clays, marly clays, loamy clays, and calcareous marls. The substances which form the base of the glaze are the same for fine and common faïence, viz, silex, feldspar, the alkalies, minium, or white lead. In the better sort of faïence, boracic acid is used to a considerable extent, and, in the more common sorts, oxide of tin, which gives a certain enamel-like opacity to the glazes, which hides the dark or re l colors of the inferior clays.

The most important centers of faïence manufacture are the Departments of Seine-Inférieure, Nièvre, Meurthe-et-Moselle, and Loire-Inférieure. In all there are only 400 establishments, which use a force of over 500 horsepower and employ 6,000 persons, of whom 1,500 are women and children. The annual output is valued at about $3,000,000.

FRENCH CERAMIC JOURNALS.

L'Architecture et la Construction dans l'Ouest, 46–48 rue Bous. Enf., Rouen.

La Céramique, 23 rue de la Chaussée-d'Antin, Paris.

Journal de la Céramique et de la Verrerie, 13 rue des Petites-Ecuriefs, Paris.

Journal du Céramiste et du Chaufournior, 20 rue Turgot, Paris.

Moniteur de la Céramique et de la Verrerie, 20 rue Turgot, Paris.

Le Moniteur des Architects, 9 rue Treilhard, Paris.

L'Architecture, 51 rue des Ecoles, Paris.

L'Architect, 13 rue des Abbesses, Paris.

MARSEILLES.

The following has been received from Consul-General Skinner:

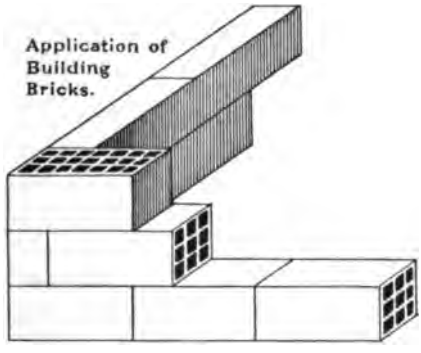
The brick and tile industry of Marseilles is described by the chamber of commerce, in its last annual report, as one "which represents the most important figure in the maritime business of the port of Marseilles, where it supports thousands of workingmen, representing a minimum of 15,000 inhabitants."

The last available statistics show a total sale during twelve months of 303,230 tons, of which 156,927 tons were exported to foreign countries. There are a number of companies engaged in the business, but they are completely overshadowed by the Société Générale des Tuileries de Marseille. This important corporation corresponds fairly well with the American conception of a trust, as it consists of 21 concerns, now organized under the general title above given, with works, the most of which are located at St. Henri, a suburban district of this city. Inasmuch as the Société Générale is the most important factor in the industry, and manufactures a more extended line of wares than any of the others, I shall confine myself to facts obtained from a representative of this company.

The principal lines manufactured by the Société Générale consist of roofing tiles, which are used almost universally in this part of the world, and tend to displace other roofing materials elsewhere.

BRICK.

The output of brick is less considerable, for the reason that stone is the prevalent building material in this country, brick being used mainly for walling, facing, and flooring. All of the local clay products are burned in kilns and they are executed in all sizes, and, in respect to tiles, in many different colors; only red bricks, however, are manufactured. While common and pressed solid bricks continue to be produced in Marseilles, they may be said to have disappeared, practically speaking, as a factor in local building operations. The present-day output of the Marseilles brick kilns is a block perforated lengthwise, which is said to be not only much lighter than the ordinary brick, but equally durable, strong, and cheap, less expensive to ship, and affording protection against humidity and heat or cold. It is claimed that the uniformity of hardness obtained in the manufacture of hollow bricks provides more resistance to fracture than ordinary bricks and power to withstand steady pressure ten times greater than may ever be required for any purpose. They require less clay and fuel to produce, less mortar to lay, and enable the bricklayer to accomplish more work in a given time. The demand for this building material for external walls is said to be growing considerably in foreign countries, as it is also in this. In France, all partition walls are made of hollow brick, as are also the ceilings, upon which the plaster is spread without any lathing whatever.

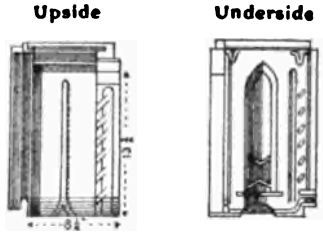


At St. Henri, all the clay products are made by machinery; and of brick alone, the production averages 800,000 pieces daily. My informant tells me that they have found no foreign machinery as good as the French, and the devices they use they find in Marseilles. The bricks are dried naturally, as a rule, but provision is made for artificial drying in case of bad weather. Continuous kilns, in which coal is the only fuel, receive the unfinished stock, which is burnt for forty-eight hours. The output is delivered in bulk by carts, rail, or sea. The works are situated on the seashore and have direct rail

connection. As a rule, shipments by sea are made in small sailing craft, capable of touching at unimportant foreign harbors able to receive vessels of low draft only. The bricks are sold per 1,000 pieces, the present average price being 25 francs ($4.82) per 1,000 kilograms, or 1,000 pieces. The workmen lay the French bricks in mortar, as in the United States, in regular straight courses.

TILES.

The evolution of the roofing tile is supposed by the directors of the Société Générale to have been completed, and, while other patterns exist, what is known as the "patent flat-roofing tile No. 1" is



now regarded as the true type of the French tile, offering advantages possessed by no other. The old-fashioned, half-round Spanish tiling is no longer produced at all. The tile which I have mentioned is 42 by 25 centimeters (16.5 by 9.8 inches) in size, each one weighing 2 kilograms (5.06 pounds), and the present price, free alongside steamers at Marseilles, is 80 francs ($15.64) per 1,000 pieces. Reduced to other terms, the price quoted amounts to about $2 per 100 square feet, laid. To these prices must be added, of course, freight, duty, and whatever local charges may be involved. The business as a whole is brought under the general term of "industries céramiques," which includes the manufacture of bricks, tiles, pottery, and clay pipes. All of these articles are manufactured by the Société Générale.

This society in Marseilles employs 4,000 journeymen, who are paid an average of 5 francs (96 cents) per day. This number does not include the vast army of men who mine and manipulate the clay but are not in all cases directly controlled by the company. I am informed by the company's representative that, all told, 15,000 laboring men are in one way or another employed by the society. The works are built in the immediate vicinity of the beds of clay utilized. The local raw material is adapted to hard burning, and severe tests, covering long periods of time, have given to the product a very high reputation. The temperature of the kilns is brought

up to 1,000° C., and even more. The raw material is remarkably uniform in quality, so that the shrinkage in the kilns is under almost absolute control. The total annual production of the works amounts to 250,000,000 pieces. The American tariff has prevented the Marseilles exporters from engaging in trade with the United States, but a very satisfactory business has been done for a number of years in Cuba, and the manufacturers are hopeful that conditions will continue favorable for an extension of this particular demand. To Cuba and Porto Rico, 1,950 tons of brick and tiles were exported from Marseilles in 1900.

CLAY-WORKING INDUSTRIES OF GREECE.*

Mr. McGinley, consul at Athens, writes:

POTTERY.

The modern pottery of Greece is principally of two kinds, viz: (*a*) Ordinary, cheap crockery ware, for common or general use; (*b*) fine ceramic pottery, artistically made and finished by men who have studied the art at the Polytechnicum, and who model their work after the celebrated ancient pottery of Greece, imitating the shape, colors, finish, etc. Some of these clay workers become very proficient and make fine imitations of many of the ancient styles.

In the preparation of the clay for pottery, brick, or tile, the Greeks sometimes mix it by hand, but often in a simply constructed clay mixer turned by horsepower.

The ordinary or common pottery is very cheap, and is used for all kinds of culinary and household purposes. Crocks, jars, jugs, vases, bowls, basins, pots, etc., of a reddish color, and usually unglazed on the outside, but glazed within, are in general use, and can be bought at very low rates. In many places, but especially on the Island of Ægina, a cream-colored water jug or jar is made which is so porous that when filled with water the moisture keeps continually exuding to the outside and there evaporating, which wonderfully cools the contents, especially when the vessel stands in a draft. These cheap "water coolers" are used by everybody, rich and poor, and great numbers of them are manufactured and sold every year. They are, as they have been for centuries, a great blessing to the people of these warm regions. These jugs are very cheap, but friable. Many thousands of jugs of the red ware are continually in use for carrying and holding water.

* Report made in answer to inquiries by the editor of an Indiana journal, who has received advance copies.

Pottery manufactories are quite numerous. Here in Athens there are a dozen or more such plants, the most noted of which are in the "Kerameikos" (clay workers') quarter in the western portion of the city and on the "Sacred Way" of the ancients. They make many kinds of crockery and some very good imitations of ancient vases, etc. In the Cyclades, and in all of the islands of the Ægean Sea, there are pottery manufactories, and the pottery of each island has certain characteristics peculiar to itself, owing to the difference in the clay or the method used in its manufacture.

TILES.

Roofing tiles are manufactured in immense numbers in Greece. In and near the cities and large villages, there is scarcely any other kind of a roof in existence; but in the mountain villages some of the roofs are covered with flat stones, or slabs of stone.

Tiles are manufactured in or near every city or town of any size in the Kingdom, suitable clay for the purpose being plentiful and widely distributed. The tiles are made by hand, the only machinery used being a simple and primitive "mixer," turned by a horse or mule, which mixes the clay in a pit in the ground.

Nineteen-twentieths of the tiles used are of the old shape, and there are two sizes. Each tile is 4 centimeters (1.5 inches) wider at one end than at the other. The two sizes are of the same length—45 centimeters (17.7 inches). The small size is 8 centimeters (3.1 inches) wide at one end and 12 centimeters (4.7 inches) at the other; the large size is 12 centimeters (4.7 inches) wide at one end and 18 centimeters (4.06 inches) at the other. Sometimes the tiles are laid in mortar, but usually they are kept in place merely by their own weight.

Of late years, a new tile, known as the "Belgian tile," is coming into limited use. It is flat and of a rectangular form, with hollows on the upper side to carry off the water, and with hollows and projections so arranged as to fit into the projections and hollows of the overlapping tile, thus binding each to the other and keeping them in place. The Belgian tile is the best tile for a steep roof.

With the exception of those located in and near Athens, the outfit of the Grecian tile manufactories is neither elaborate nor costly. A tile manufacturer of the smaller towns can often carry his entire outfit on the backs of two or three donkeys, and thus move his plant from village to village where there is a demand for tiles. Drain tiles and chimney tiles are made in considerable quantities. Nearly all the chimneys on dwellings in Greece are simply tiles built into the walls of the building and extending to 3 feet above the roof. Ventilators are made in the same way.

BRICK.

With the exception of those producing marble—of which there are many good varieties—magnesite, or other minerals, the mountains of Greece are principally limestone. Very few cities or villages of the Kingdom are far from a limestone quarry, and the houses are frequently built of this material, many of the best buildings being faced or ornamented with marble. But most of the houses even here in Athens are built of stone and stuccoed on the outside—and often on the inside—and painted in good imitation of marble. This stucco lasts many years on the exterior of buildings in this climate, where frost is seldom seen, and is cheaper than marble.

In some country villages, where the quarries are very far away or the roads are bad, houses are often built of sun-dried brick; but in portions of northern Greece, especially in the small villages of Thessaly, houses are built by first erecting a frame of willow poles and rods and then covering this wickerwork with a coating of mud or clay mortar.

Sun-dried brick are used in considerable quantities. The humbler houses in the suburbs of the cities of Athens, Piræus, and Patras, and in many villages where stone is not plentiful or easy of access, are built of sun-dried brick. In fact, in some villages the houses are nearly all built of this material. Many fences or walls throughout the country are composed of blocks of clay 1 yard square and half a yard thick, made in a manner somewhat similar to the manufacture of sun-dried brick. The brick, as the name implies, are dried by the heat of the sun only. They vary in color, according to the color of the clay used, and measure about 12 by 6 by 2½ inches. These brick are made in every village, town, and farm in Greece that has clay, and there are few places in the Kingdom that have no clay deposits. The annual quantity manufactured is not known. They are sold by the number, at from $1.75 to $2 per thousand. They are sometimes laid in lime and sand mortar, but more often in mud or clay mortar.

Kiln dried or burned brick are manufactured in or near Athens, Volo, Chalkis, Pyrgos, and elsewhere in Greece; they are of a hard quality, and usually of a very light cream color. It is said that no soft kiln-burned brick are made. Kiln-burned brick are used for the erection of chimneys in factories, foundries, etc., partitions in buildings, bakers' ovens, and furnaces, and sometimes for building drains and sewers. Iron chimneys or "smoke stacks" are seldom erected.

On account of the limited use of kiln-burned brick in the Kingdom, the manufactories of this material are few. There are but four or five of importance, and even those do not make brick exclusively—they also manufacture tile.

Like the sun-dried, the kiln-burned brick are made by hand, the only machinery used being the simple "mixer" propelled by horse-power.

The kiln-burned brick measure about 11 by 4⅝ by 1¾ inches. One man can mold 3,000 each day. The annual product of the manufactories of the Kingdom can not be learned.

After the bricks are molded, they are allowed to lie in the sun until partially dried and stiff enough to handle easily. They are then built up in an "open-work" manner similar to the method used in the United States, so that the heat from the fire can reach each brick. The fuel used is nearly always wood; and the fire, never very hot, is kept up about fifteen days.

Kiln-burned brick are sold by the hundred or thousand directly to the consumer at from $3.50 to $5 per thousand. They are very seldom shipped by rail or water, as such transportation is too costly.

In building, the kiln-dried bricks are laid in lime and sand mortar, flat side down (never on the edge); but as the mortar is very often bad and gets soft in damp weather, cement is used in laying the brick in a construction which it is desired to make permanent.

RAILWAY PROJECT IN GREECE.

What is adjudged in economic and Government circles as the most significant massing of capital in this country for many years, and one calculated to work a great deal of good nationally and considerable benefit internationally, is the organization of the Piræus-Larissa Railroad Company, which was formally effected on March 14, 1902. The capital involved will be 10,000,000 drachmas (about $1,250,000) stock and the floating of a total loan of 35,000,000 francs ($8,750,000). The first part of this loan, amounting to £880,000 ($4,282,520), has already been taken up in this country by the National Bank of Greece; in France, by the Bank of Paris and the Netherlands; in England, by Hambro & Son, of London; and in Germany, by the banking house of Blaichraïder, of Berlin. The company is obligated to meet the first loan within four years, and the second loan will be effected at the end of two years.

The project for the construction of a broad-gauge railroad to open communication with the more or less isolated, but rich, territory of northern Greece and to connect with the transcontinental lines of Europe, to which I referred briefly in my report dated July 10, 1901,* dates back several years. In fact, an agreement with the Greek Government for the construction and operation of such a line had been reached more than two years ago, by the terms of which

*See ADVANCE SHEETS No. 1121; CONSULAR REPORTS No. 253.

the issue of the loan and the beginning of the work were fixed at the declaration of peace in the Transvaal. The unsettled condition of affairs in South Africa, however, prevented the commencement of the work, and the organization has been re-formed—the principal change being the price at which the bonds are to be sold. Under the former contract, bonds were to be sold at 85, while the new concession reduces the price of bonds to 83½, bearing 4 per cent interest, the banks receiving them at 80. It is also probable that under the old organization the presidency of the board of control would have fallen to Greece, whereas the president of the new company will be Monsieur Bouré, formerly French ambassador at Athens. It is not likely that the National Bank of Greece will be a shareholder in the new company, although the bank has definitely assumed £100,000 ($486,650) of the loan which will be offered to the Greek market.

The full text of the contract, already signed, has not yet been published, although the main conditions are generally known. I give below what seem to be the particulars of interest:

The scope of the enterprise will be the construction and operation of the proposed road from Piræus to Demerly, a point near Larissa and the Turkish frontier, with numerous ramifications already conceded and to be conceded. The 10,000,000-drachma capital stock will be divided into 40,000 shares of 250 drachmas each, 20 per cent of which is payable at the registration of the company and the remainder in proportion to the progress and needs of the work.' To provide against a possible emergency, a number of well-known capitalists (Erlanger & Co., J. Coen, Baron de Rolter, and the committee of the Eastern Railroad Company) obligate themselves to meet such shares as are due and unpaid at any time. Each share will be entitled to a dividend of 6 per cent, and the surplus will be divided between the shareholders and the Greek Government. The board of control will have a membership of not less than seven nor more than eleven, of which number three are to be appointed by the Government and the remainder elected by the shareholders. The first board of managers will hold office for four years, and each member must be the nominal holder of fifty shares, exception being made in the case of the directors appointed by the Government. The seat of the company will be at Athens.

Greece, though a part of Europe, is isolated from direct communication with the Continent. Connection with the transcontinental lines has been a crying need for many years, but even greater has been the need of reaching the outlying northern eparchies, which are among the richest in natural resources of the country; and the proposed line is regarded with much favor. Especially is it calculated to open up the two eparchies Levadia and Phthiotis, the former to the development of cotton growing, to which it is well adapted, and the latter to the cultivation of tobacco. At present, neither of these sections, by reason of their isolation, can figure prominently in trade, whereas the Peloponnesus is almost encircled by railroads, and the principal trade centers in the interior enjoy excellent transportation facilities. Northern and central Greece are scarcely better connected than some of the islands of the Mediterranean.

The chief difficulty in the way of the completion of the road, and the one which makes the project an international issue, is the question of its union with the transcontinental line in Turkish territory. As given out by the Greek press, it seems probable that the consent of the Ottoman Government for the junction of the two lines will not be readily obtained, since the objections are both commercial and political. The effect which such a road may have upon the port of Salonica—now one of the principal outlets for the commerce of the interior of Turkey, Bulgaria, Austria-Hungary, and Germany to Asiatic and African ports—will be considered. The strategic importance to be attached to such an opening and the effect of such communication upon Macedonia will be viewed with even less favor. However, these are questions for which it is believed some adequate solution will be found.

FRANK W. JACKSON,

PATRAS, *March 18, 1902.* *Consul.*

RAILWAYS IN TURKEY.

General interest throughout the transportation world, as well as in the domain of politics, has been excited by the conclusion of the contract between the Ottoman Government and the Anatolian Railway Company for the construction of the railroad from Konieh to Bagdad and the Persian Gulf, which insures through rail communication from the Bosphorus and the Mediterranean to the Indian Ocean.*

As is well known, the prolonged delay in reaching the agreement hinged upon the amount of the imperial subsidy to be accorded the new road and the security offered for the same. The road is a continuation of the railway extending from the Bosphorus to Konieh, and the company which built and owns the latter has received the concession for the new route. For economic reasons, it is evidently desirable that this company should construct and operate the prolongation.

Before the close of the negotiations, it is reported that American capitalists offered to construct and operate the road without requiring a State subsidy.

Recent propositions from the same quarter to construct a line along the eastern littoral of the Red Sea indicate that American capital is beginning to consider seriously the possibility of investment in the Orient. There is a strong probability that concessions could be obtained by American capitalists in the Ottoman Empire with greater ease than by Europeans, on account of the total absence of political entanglements.

*ADVANCE SHEETS Nos. 1290 and 1308.

It is perhaps desirable, under the circumstances, to furnish a brief summary of the actual condition of the railways in the Ottoman Empire, showing especially their extent, the amount of traffic, and how far they tend toward independence of State subsidies. For most of the figures furnished in this connection, I am indebted to the courtesy of M. Alexis Bey, manager of the Constantinople-Salonica Junction Railroad.

The following railway lines were in operation at the beginning of the year 1901; with a few exceptions (noted) they are built with the normal gauge of 144 centimeters (56.694 inches).

Oriental Railroad.—The main line extends from Constantinople to Bellova, in eastern Roumelia, where it connects with the line running through Sofia and Belgrade to Vienna. It has branches to Yamboli, in eastern Roumelia, and to Dedeagatch, on the Ægean Sea. A secondary line extends from Salonica to Mitrovitz in the extreme northwest, and has a branch from Uskub to Zibefdjé, on the Servian frontier, providing connection with the above-mentioned line to Vienna. The total length is 1,265 kilometers (786 miles). The road is built with Austrian capital. There is no Government guaranty. The company pays annually to the State the sum of $366,638, which meets the charges for interest and sinking fund on a 4 per cent loan of 1894, guaranteed by the Government.

Constantinople and Salonica Junction Railroad.—This line extends from Dedeagatch to Salonica, connecting the two main lines of the preceding railroad. It was constructed by French capital, and has a total length of 510½ kilometers (317 miles). The Government guarantees annual gross receipts of $4,814.30 per mile.

Salonica and Monastir Railroad.—This line extends west from Salonica to Monastir. It has a length of 219 kilometers (136 miles), and was constructed by German capital. The Government guarantees annual gross receipts of $4,441.60 per mile.

The following lines are all in Asiatic Turkey and Syria:

Anatolian Railroad.—This extends from Haidar-Pasha on the Bosphorus, opposite Constantinople, eastward to Angora, with a short branch to Adabazar. A long branch extends from Eski Shehr—midway between Constantinople and Angora—southeasterly to Konieh. The continuation of this branch will form the Bagdad Railroad. It was built mainly by German capital, and has a total length of 1,032 kilometers (641¼ miles). The main line to Angora, 359 miles in length, is guaranteed by the State annual gross receipts of $4,426.90 per mile. The recent branch to Konieh, 276½ miles in length, is guaranteed by the State annual gross receipts of $4,293.60 per mile, provided that the subsidy does not exceed $2,091.70 per mile. For 1900, the gross traffic receipts were but $1,291.90 per mile, so that there was a serious deficit.

Smyrna and Cassaba Railroad.—This line extends east from Smyrna to Afion Karahissar, on the line of the Anatolian Railroad. It has branches near Smyrna to Soma and to Bournabat. It was constructed by French capital, and has a total length of 517 kilometers (321¼ miles). The older portion of the line (165¼ miles) receives an annual State subsidy of $445,830, less one-half of the gross receipts. For 1900, the subsidy was $94,920. The later portion, extending from Alashehr to Afion Karahissar, opened in 1897, is 156 miles in length and receives a Government guaranty of annual gross receipts of $5,864.40 per mile.

Aidin Railroad.—This line, with various short branches, extends east from Smyrna to Dinair. It was constructed with English capital and has a total length of 516 kilometers (320½ miles). There is no Government guaranty.

Damascus and Hamah Railroad.—This line extends from Beirut to Damascus and southward from Damascus to Mzerib. The gauge is 105 centimeters (41⅓ inches). It was built by French capital and has a length of 155⅓ miles. It receives an annual State subsidy of $144,750.

Yafa and Jerusalem Railroad.—This line, connecting Jerusalem with the Mediterranean, has a gauge of 1 meter (39.37 inches) and a length of 54 miles. Its operating expenses are 43 per cent of the traffic receipts.

Mersine and Adana Railroad.—This short line connects two important centers—Adana and Tarsus—with the seaport of Mersine, on the southeastern coast of Asia Minor. Its length is 41½ miles.

Moudania and Brousa Railroad.—This short line extends from Moudania, on the Sea of Marmora, to the large city of Brousa. It is narrow gauge—1 meter (39.37 inches)—and has a length of 25½ miles.

Receipts of the Turkish railroads for the year 1900.

Railroad line.	Length.	Annual traffic receipts, average per mile.	State guaranties, per mile.	Guaranties due and paid by the State, per mile.	Total annual traffic receipts.	Sums paid by the State.
	Miles.					
Oriental	786	$2,422	(*)		$1,936,207	
Constantinople and Salonica Junction	317	1,111	$4,814.30	$3,703.30	352,347	$1,174,723
Salonica and Monastir	136	2,140	4,441.60	2,301.60	291,526	313,444
Anatolian:						
Haidar-Pasha and Angora line	359	2,838	4,426.90	1,588.90	1,018,405	571,489
Eski-Shehr and Konieh line	276½	1,292	4,293.60	†2,091.70	357,239	578,951
Adabazar line	5¾	3,720			20,805	

*A sum of $366,638 is paid annually to the Turkish Government, which guarantees certain interest and sinking-fund charges.

†The maximum sum to be paid as guaranty.

Receipts of the Turkish railroads for the year 1900—Continued.

Railroad line.	Length.	Annual traffic receipts, average per mile.	State guaranties, per mile.	Guaranties due and paid by the State, per mile.	Total annual traffic receipts.	Sums paid by the State.
Smyrna and Cassaba:	*Miles.*					
Old line	165¼	$4,256	.....	(*)	$703,421	$94,120
New line	156	1,108	$5,864.40	$4,756.40	172,857	741,790
Aidin	320½	4,220	.....	.....	1,355,077	.....
Damascus and Hamah	155⅓	2,754	.....	(†)	427,745	144,750
Yafa and Jerusalem	54	2,602	.....	.....	140,669	.....
Mersine and Adana	41½	2,416	.....	.....	100,732	.....
Moudania and Brousa	25½	1,912	.....	.....	49,069	.....
Total	2,798⅓	.....	.....	.....	6,926,099	3,619,267

*The Government grants an annual subsidy of $445,830, less one-half of the gross receipts.

†An annual subsidy of $144,750 is paid as indemnity for certain delays in permitting the completion of the line.

Receipts of the Turkish railroads, classified by sources of capital, for the year 1900.

Railroad line.	Source of capital.	Gross traffic receipts.	Guaranties and indemnities paid by the State.	Total receipts— By companies.	Total receipts— By sources of capital.
Salonica and Monastir	German	$291,526	$313,444	$604,970	$3,151,859
Anatolian	do	1,396,449	1,150,440	2,546,889	
Aidin	English	1,355,077	.....	1,355,077	1,355,077
Oriental	Austrian	1,936,207	.....	*1,569,569	1,569,569
Constantinople and Salonica Junction.	French	352,347	1,174,723	1,527,070	3,811,753
Smyrna and Cassaba	do	876,278	835,910	1,712,188	
Damascus and Hamah	do	427,745	144,750	572,495	
Yafa and Jerusalem	Miscellaneous	140,669	.....	140,669	290,470
Mersine and Adana	do	100,732	.....	100,732	
Moudania and Brousa	do	49,069	.....	49,069	
Total	.....	6,926,099	3,619,267	10,178,728	10,178,728

*Deduction made of the sum paid the Turkish Government for interest and sinking fund, mentioned above.

Receipts of the Turkish railroads in 1899 and 1900.

Railroad line.	Total traffic receipts. 1899.	Total traffic receipts. 1900.	Traffic receipts per mile. 1899.	Traffic receipts per mile. 1900.
Oriental	$1,987,128	$1,936,207	*$2,528	*$2,422
Constantinople and Salonica Junction	302,817	352,347	954	1,111
Salonica and Monastir	281,973	291,526	2,071	2,140
Anatolian:				
Haidar-Pasha and Angora	798,055	1,018,405	2,224	2,838
Eski Shehr and Konieh	199,369	357,239	722	1,292
Adabazar†	.....	20,805	.....	3,720
Smyrna and Casaba:				
Old line	705,608	703,421	4,345	4,256
New line	133,942	172,857	858	1,108

*Credits for military transportation are not included. †Opened in November, 1899.

Receipts of the Turkish railroads in 1899 and 1900—Continued.

Railroad line.	Total traffic receipts.		Traffic receipts per mile.	
	1899.	1900.	1899.	1900.
Aidin	$1,172,089	$1,355,077	$3,656	$4,220
Damascus and Hamah	397,001	427,745	2,429	2,754
Yafa and Jerusalem	141,855	140,669	2,626	2,602
Mersine and Adana	110,782	100,732	2,662	2,416
Moudania and Brousa	55,584	49,069	2,166	1,912
Total	6,286,203	6,926,099		

*Guaranties and indemnities paid by the State to the Turkish railroads in 1899 and 1900.**

Railroad line.	Guaranties and indemnities paid in—		
	1899.	1900.	1901.
Constantinople and Salonica Junction	$1,224,392	$1,174,723	$1,217,198
Salonica and Monastir	322,696	313,444	308,682
Anatolian:			
Haidar-Pasha and Angora	790,528	571,489	(†)
Eski Shehr-Konieh	578,228	578,951	579,674
Smyrna and Cassaba:			
Old line	93,026	94,120	(†)
New line	780,299	741,790	(†)
Damascus and Hamah	144,750	144,750	144,750
Total	3,933,919	3,619,267	

* Payments made in 1901, as far as known, are added. † Not yet computed.

The growth of the railroad system in the Turkish Empire during the last five years of the past century has been slow; and equally slow has been the extension of traffic, so as to meet fixed charges and operating expenses, independent of State aid.

This growth may be seen by the following comparison:

Year.	Total length of railroads.	Length of railroads receiving subsidies.	Subsidies paid.	Traffic receipts.
	Miles.	*Miles.*		
1896	2,634	1,185	$2,846,750	$6,612,759
1899	2,792⅔	1,410½	3,933,919	6,286,203
1900	2,798⅓	1,410½	3,619,267	6,926,099

The year 1900 shows, however, an increase in receipts over the preceding year amounting to more than 10 per cent, with a corresponding diminution of State aid. Indications point to a similar ratio of increase for the year 1901.

It would appear from the above data that, with the exception of the lines in the immediate neighborhood of Smyrna, no railway

of any length in Turkey is at present able to meet operating expenses and fixed charges unless aided by State subsidies. Companies that have made the experiment have been forced to compromise with their bondholders.

The conclusion may well be drawn that no new railroad undertaking in Turkey can hope for success, unless at the beginning State aid is granted.

The guaranty given by the Turkish Government to the projected Konieh-Bagdad line is higher than that granted to any other railway except the new line of the Smyrna-Cassaba Company. It amounts to $5,125 annually per mile. Of all gross traffic receipts in excess of $3,106 per mile, 60 per cent is applied to reduce the Government guaranty, or paid directly to the Government if the guaranty is covered. Thus, if the annual gross traffic receipts of this road should ever exceed $6,471 per mile, 60 per cent of the excess over this sum will be pure profit to the Turkish treasury.

The probabilities are that many years must elapse and many millions in the form of subsidies must be expended before this point is reached.

There is no doubt but that administrative measures permitting greater freedom of movement throughout the Empire and encouraging agriculture and manufactures would soon bring all existing and projected railway lines to a self-supporting condition.

THOMAS H. NORTON,
Consul.

HARPUT, *February 28, 1902.*

COMMERCIAL CONDITIONS IN TURKEY.

The following extracts are from the annual report of Consul-General Dickinson, of Constantinople:*

In my last annual report,† I referred to the fact that the direct steamship line between New York and levantine ports, established in February, 1899, had reduced through freights from 25 to 33 per cent, and had thus introduced into the levantine markets a new and large variety of American products; that the Liverpool steamship companies had combined to drive what was known as the "Yankee" line out of business; and I expressed apprehension that if they were successful in this effort, freight rates would go back to their former figure and competition with European manufacturers to any considerable extent would be at an end.

*To appear in full in Commercial Relations, 1901, now in the hands of the printer.
†Commercial Relations, 1899, vol. 2.

The note of alarm sounded in that report as to the result of the efforts of the Liverpool combination to destroy the competition of the direct service was fully justified. Nearly all the exporters in this city who ship goods to the United States also make considerable shipments to several ports in England, and the Liverpool steamship combination finally served notice on these exporters that a sharp discrimination would be made against their goods shipped to English ports unless their shipments to the United States were given to one of the Liverpool companies. The threatened discrimination, if enforced, would have prevented these exporters from entering the English markets on equal terms with their competitors, and the result was that they were obliged to capitulate to the Liverpool steamship combination on the best conditions they could obtain. By acting in harmony and practically as a unit, however, they were able to continue the reduced rates which had been established through the competition of the direct line, and these are still in force. The result is that the suspension of the direct service has not seriously interfered with the introduction of American goods and products into these markets, with the exception, perhaps, of heavy and bulky articles, which could not easily be transshipped.

On the contrary, the impetus given to American products by the direct steamship service and the increased commerce resulting therefrom has led to freight competition on the part of other well-established companies; and the Liverpool combination, which expected to continue its monopoly of freight to and from the United States, has been obliged to reckon with rivals quite capable of taking care of themselves. A German company, known as the Deutsche Levante Linie, started some months ago a semimonthly freight and passenger service between Hamburg and Odessa, connecting at the former city with the Hamburg-American Line for New York, and it is now reported that the business of these two companies will hereafter be conducted under one management. The Deutsche Levante Linie has already demonstrated its ability to furnish a freight service to and from New York at satisfactory rates, and the union of this company with the Hamburg-American Line should result in still further advantage to exporters of American goods.

The Italian steamship line, known as the Florio-Rubattino, has also, during the past year, become a sharp competitor for American freights, and its service to Naples and thence direct to New York gives it a "short haul" across the Atlantic and thus a considerable advantage over all competing lines. This company has recently put several new steamers on the New York-Naples route, with close connections at the latter city with its levantine lines, and the result is that, in a number of instances brought to my attention, this line has

delivered New York shipments in Constantinople in twenty-five to twenty-seven days. A strictly direct and unbroken service could hardly do better, and, so long as the present competition is maintained, there seems to be no good reason why American products and manufactures, with the exception of those difficult of transshipment, should not enter these markets and compete with the goods of European rivals.

EXPOSITION FOR AMERICAN PRODUCTS.

It gives me pleasure to report that the exposition for American products, which was established here in 1899 under the name of the American Oriental Agency,* is still continued and has made steady and substantial progress. This may be attributed to the fact that it is not merely an exposition maintained at the expense of American exporters, but it is a business enterprise conducted for profit; and while it makes a handsome display of goods for the large number of American exporters who are seeking these markets through this medium, the energies of the concern are devoted to finding purchasers for these goods. In this way only are its profits derived, as the American exporter pays nothing to the agency for exhibiting his goods or putting them upon the market. The exporter sells his goods, not to the retail dealer, but to the agency, and as this has been established and is being conducted by one of the leading bankers of this city, the exporter is relieved of the risk which is usual in selling goods in the East. The losses which English, German, and other European manufacturers have sustained in these countries by selling goods on long credits to retail dealers are understood to have been very serious.

During the past summer, a member of the New York firm which represents the American exporters who furnish goods for the American Oriental Agency spent two or three months in Constantinople, Smyrna, and other cities in this region, and was of material assistance in opening up new avenues for American trade. Orders for goods amounting to about $40,000 were taken in Smyrna, and a traveling solicitor of the agency reports that there has been a substantial increase in business at several points.

About 700 acres of land near San Stefano—a few miles from this city—were rented by the agency a few months ago. A large quantity of American grains and seeds of various kinds has been ordered, together with a variety of agricultural machines and implements, and during the coming season farming operations with American machinery and materials, and as nearly as possible on the American plan, will be carried on as an object lesson to farmers and

*ADVANCE SHEETS No. 493; CONSULAR REPORTS No. 228.

peasants of this region. It is believed that this will familiarize them with American farm methods and stimulate the sale of American machinery, tools, and products.

The new and handsome store and warehouse into which the agency moved one year ago is filled with American goods, and being in the principal street, with large show windows, it furnishes a splendid advertisement. Something of the growth of the agency's business, which started at zero two years ago, may be seen from the following report of goods sold and ordered for the Constantinople market alone during the last six months of 1901; all of which, I understand, have been received and delivered, except a part of the agricultural machinery, pumps, and oleo oil: Orders, cost price in New York, for six months ended December 31, 1901, comprising agricultural machinery and tools, windmills, pumps, malleable fittings, tin plates, lamps, jewelry, furniture, confectionery, oleo oil, cotton goods, rosin, stationery supplies, typewriters, hosiery, soaps, perfumery, brooms, carpet sweepers, silverware, clocks and watches, trunk makers' supplies, locks and hinges and other house hardware, carpenters' tools, etc., amounting to $106,610.

OTHER AGENTS FOR AMERICAN GOODS.

But the American Oriental Agency is not the only Constantinople concern which is engaged in introducing American goods into this country, though there is no other which makes such a specialty of our goods and products. I understand that the agent of an American trust has sold during the year over 1,900 tons of wire nails. Nearly all the American manufacturers of harvesting and mowing machines are represented here—the Osborn Company, the Deering Company, the Walter A. Wood Company, the McCormick Company, and the Milwaukee Company, the American Oriental Agency representing the last named. I have caused inquiry to be made in regard to the number of American agricultural machines of this character sold by these agents during the past season, and am informed that their aggregate sales were 470 reapers and mowers, 2 binders, 4 rakes, and 1 thrashing machine. I doubt the accuracy of one of these reports; 370 would probably be nearer the true mark. These dealers are making no efforts to sell binders, as they consider this machine too complicated for the use of the Turkish peasants.

The Anatolian Railway Company has employees at all stations in Asia Minor whose business it is to encourage the sale of agricultural machinery and implements of modern make and to instruct the peasants in their use. As the railway is under the control of a German group of capitalists, it has been inferred that the company would favor machines and implements of German manufacture, but

the agent who represents one of the American companies here informs me that he is perfectly satisfied with the railway company's methods; that it pushes agricultural implements on their merits; that he has sold the company forty American reapers during the past season; and that while the company favors a German plow (Eckhardt's, of Berlin), it does so because it is lighter and cheaper than the American plows brought to this market. The Anatolian Company sells agricultural machinery and implements to the farmers along its line, taking pay in installments, and endeavors in every way to encourage agriculture, increase the products of the soil, and thus stimulate and improve tonnage and traffic along its line.

AGREEMENT AS TO FREIGHT RATE.

I hear considerable complaint in regard to the indifference of the American exporter in securing a satisfactory freight rate from New York to the place of destination. The English and German exporter, it is claimed, will take as much pains in securing a low through freight rate as if the freight were paid by him, while the American exporter will often make a shipment without any agreement beyond the point where the goods are transshipped. As the ability of American goods to compete in the foreign market is generally determined by the freight charges, this is a point which should have the closest attention.

IMPORTANT RAILWAY CONCESSION.

The important irade permitting the Anatolian Company to extend its line from Konieh to the Persian Gulf, which has been so widely discussed for several months in diplomatic circles and the public press, is now an accomplished fact.

The new line will connect the existing railway system of Asia Minor with the most distant provinces of the Empire, and passing through Bagdad and Basra will reach the sea, thus establishing direct and rapid communication between the Bosphorus and the Indian Ocean. It will start from Konieh, the southern terminus of the Anatolian Railway, traverse the elevated table-lands of Caramania, and through the Taurus Range will descend into the fertile plains of southern Cilicia and reach Adana, which is already connected by rail with Mersine. Technical works of exceptional difficulty will have to be carried out, especially in the chain of the Taurus. From Adana, the line turns to the northeast, ascends the Djihan Valley, and through the mountainous region of the Ghiaour Dagh, which it crosses by the Bagtche Gorge, proceeds across a very difficult country south-southeast, passing by Kazanali, Kilis, and Tell Habesch. A branch, 60 kilometers (37.2 miles) in length, will connect the last-

mentioned place with Aleppo. The main line runs east from Tell Habesch, crosses the Euphrates at a point 20 kilometers (12.4 miles) to the south of Biredjik, passing by the interesting ruins of the ancient town of Europus, by Harran, Ras el Ain, and Nissibin, and, turning to the southeast, arrives at Mossul, thus bringing ancient Nineveh within easy reach of Constantinople. Edessa of antiquity, or modern Ourfa, will be connected by a branch of about 30 kilometers (18.6 miles) with some point to be determined hereafter. On leaving Mossul, the railway proceeds due south along the right bank of the Tigris, through Tekrit and Sadije—whence a branch runs to Hanekin, on the Turko-Persian frontier—and reaches Bagdad. Here it crosses the Tigris, and by Kerbella, Nedjef (Meshed Ali)—the holy cities of the Shiite Mohammedans, which are annually visited by an immense number of Persian pilgrims—and Zubeir, arrives at its terminus, Basra, the great emporium on the Shat el Arab, while a branch from Zubeir will be run to some point on the Persian Gulf which has not yet been determined. Including branches, the railway has a length of 2,500 kilometers (1,553.5 miles). The term of the concession is ninety-nine years.

The new line will be divided into sections of 200 kilometers (124 miles). The plans for the first section must be submitted to the approval of the Government within eighteen months of the issue of the firman; work must be commenced within the next three months, and the whole line be ready for traffic within eight years. The Government guarantees 12,000 francs ($2,316) of net receipts per kilometer (0.6214 mile) per annum, plus 4,500 francs ($868.50) per kilometer for working expenses.

The new line will be built in such a way as to allow the introduction of high-speed trains, covering the distance between Constantinople and Bagdad in fifty-five hours. The concessionaries engage—in consideration of a payment of 8,000,000 francs ($1,544,000) in annuities of 360,000 francs ($69,480)—to strengthen the Haidar-Pasha-Eski-Shehr-Konieh line, so that it may bear the strain of similarly rapid trains.

The concessionaries are authorized to work any mines which may lie within 20 kilometers (12.4 miles) on either side of the railway throughout its entire length, and also to establish tile and brick kilns. To the concessionaries is reserved the preference on equal conditions over all other applicants for seven branch lines to Marash, Aintab, Biredjik, Mardine, Erbil, Diala, and Hit. It will be at once seen that this project is one of far-reaching importance, not only opening up the fertile regions which supported an immense population in the early history of the race, but affecting seriously the commercial routes of the oriental world.

In a supplementary report, Mr. Dickinson sends clipping from the Oriental Advertiser, of Constantinople, giving particulars of the new steamship service, from which it appears that the first steamer left New York on February 8, and that other steamers will follow at intervals of less than thirty days. There is every indication, therefore, he says, that the low freight rates secured through the establishment of the direct service known as the "Barber Line" in 1899 will be maintained.

The clipping reads:

With a view to further developing the trade between the United States of America and this country, the Hamburg-American and Deutsche Levante lines have combined a regular monthly service of first-class steamers to run between New York and the following ports:

Outward.—Malta, Alexandria, Piræus, Smyrna, Constantinople, Novorossisk, and Odessa.

Homeward.—Odessa, Constantinople, Rodosto and other Marmora ports, Smyrna, Piræus, Patras, Malta, and Algiers.

Cargoes will also be taken at through rates for Anatolia, Bulgaria, and Roumania, and the steamers will call at intermediate ports either way when inducement offers.

The service has been inaugurated by the steamship *Seriphos*, which sailed from New York on the 8th of February, and will be followed by the steamship *Sicilia*, sailing the 27th of February, the latter by the steamship *Georgia* on the 20th of March and the steamship *Milos* on the 17th of April.

The above-named steamers are in every way fitted for the service, and have accommodation for passengers. The particulars are:

Steamers.	Gross tonnage.	Cubical capacity.	Dead weight.
	Tons.	*Feet.*	*Tons.*
Sicilia	2,922	182,500	4,180
Georgia	3,143	199,700	4,570
Milos	2,843	206,268	4,300
Seriphos	3,187	223,331	4,650

Special rates of freights will be accepted both ways, and the promoters are confident that the inducements that will be held out to shippers and receivers will in a short time lead to a rapid development of the undertaking, and that more vessels will be employed on the line and the departures be more frequent.

STEAMSHIP SERVICE BETWEEN NEW YORK AND CONSTANTINOPLE.

German iron circles look upon the direct freight service which has been inaugurated by the Hamburg-American and Levante lines between New York and Constantinople with misgivings.

It is taken for granted that the United States will at once improve the opportunity and enter into lively competition with German trade in the Orient.

The central organ of the German rolling mills expresses surprise that a German steamship line should have been ready to inaugurate an enterprise opposed to the interests of German industries.

A mitigating reason for the Levante Linie, it is said, may be found in the fact that it has operated without profit for seven years, and is therefore compelled to take hold of every opportunity to increase its revenues. Nevertheless, the paper claims, Germans have a right to expect that the new line will adopt freight rates compatible with the interests of the German export industry, so that the greatest damage will at least be avoided. This expectation, the paper states, is also shared in Government circles.

RICHARD GUENTHER,
Consul-General.

FRANKFORT, *March 1, 1902.*

STEAMSHIP FACILITIES BETWEEN THE UNITED STATES AND THE LEVANT.

In continuation of my report on this subject of December 27, 1901,* I would state that Beirut and the Syrian coast are not at present included in the itinerary of the new America-Levant Line and Egypt will be touched only by outgoing steamers. In order to reach Syria and Palestine by this route, American goods must be transshipped at Alexandria. Freight and passengers from Syria to the United States may be transshipped at Malta.

I have urged the companies interested to cover the whole field from the start, but they say it is not possible for them to do so. It will be necessary for that purpose, they state, to establish two routes, viz: (1) New York, Piræus, and Odessa; (2) New York, Malta, Alexandria, Beirut, Smyrna, and Constantinople.

Already, the northern route has been inaugurated. Next year, if the exports from the United States attain the expected dimensions, the second route will be realized.

Further particulars may be obtained by consulting the Hamburg-American Line, 35 and 37 Broadway, New York City.

G. BIE RAVNDAL,
Consul.

BEIRUT, *February 15, 1902.*

*ADVANCE SHEETS No. 1259 (February 7, 1902).

UNITED STATES TRADE WITH MALTA.

From present indications, it will not be surprising if the local demand for American goods almost doubles within the next twelve months. This opinion is based upon two good reasons. The first is that the Mediterranean and New York Steamship Company, which established a line of steamers between New York and Malta a little over two years ago and provided this island with the first direct trade relations with the United States it had enjoyed for years, has begun to increase the number of its sailings. In January and February, there were two sailings each month from New York, instead of one. In addition to this, the Hamburg-American Company has just established a line of steamers from New York to the Mediterranean, touching at Malta. With these facilities, profit to our merchants is almost sure to speedily follow.

The second reason is that, on account of the facilities above mentioned, merchants here who have never dealt in American goods, but have always traded with English, French, and German houses, are now turning their attention to the United States, and lately I have been very busy giving them information as to various lines of our products and placing them in correspondence with our manufacturers.

To those who may have received letters from Maltese merchants and who may read this report, I would give a word of caution. Do not quote "f. o. b." prices at places in the interior of the United States. The merchant here knows nothing about our express or railway-freight charges, and unless he is given f. o. b. steamer rates, the information is entirely unsatisfactory. His idea of buying American goods is often abandoned for no other reason. Many of our firms, which might otherwise gain good customers here, lose opportunities because they will persist in giving such quotations as only confuse the Maltese merchant and leave him in the dark as to what his goods are going to cost him. As an example of the information desired, I give the following:

A few weeks ago a certain western firm of carriage manufacturers sent some catalogues here. These catalogues were replete with illustrations. With each illustration was a large amount of descriptive printed matter. Prices f. o. b. New York were given, and the manufacturer even went into the matter of the cubic measurement of each article, crated, and also the weight and the rate of freight by steamer to many ports in foreign countries. In fact, the information was so complete and acceptable that I know of a number of persons here who are seriously considering sending

orders for American carriages. Ordinarily, it takes a month from the time of writing before an answer is received, and, obviously, such a catalogue as this saves the writing of several letters. People in Malta have a favorable opinion of American carriages, which I believe can successfully compete with those coming from France and Italy, which control the trade. American carriages are liked because they are lighter and stronger than other makes. However, only carriages of the cut-under style will do for Malta, on account of its narrow roads.

FLOUR.

United States flour still seems to be forging ahead, although the importations of it do not yet equal those of English flour from Liverpool. The attention of local flour merchants is rapidly turning to our product, and I have lately given several merchants the addresses of millers in the United States. In some cases, the applicants have never dealt with other than English or French concerns.

Wheat shipments have fallen off in favor of the manufactured product. The reason is easy to discern from the following clipping from the Malta Daily Chronicle of to-day:

It is high time that steps should be taken toward the restriction of the importation of flour. Perhaps few are aware of the detriment to the country that the importation of flour implies.

The average quantity of wheat milled in Malta between 1883 and 1896 was 400 salms* per day. One hundred salms of wheat will give 120 quintals of semolina and 100 quintals of flour (these results are obtained from hard wheats), equal to 176 bags of 100 kilograms (220.4 pounds) each.

One hundred salms of wheat will pay—

Description.	Value.			
	£	s.	d.	
Transshipment from steamer to lighter	0	11	8	$2.84
Hire of lighter	0	1	8	.41
Tug	0	3	0	.73
Landing	0	10	0	2.43
Cleaning	0	11	3	2.74
Measuring	0	15	0	3.65
Cartage to granaries	1	0	0	4.87
Storage into granaries	0	8	4	2.03
Hay	0	12	0	2.92
Rent of granaries	0	16	8	4.05
Second measuring	0	15	0	3.65
Cartage to mills	1	13	4	9.11
Milling	15	0	0	72.99
Total	22	18	9	111.42

From this, we see that for every 100 salms of wheat our laborers earn £22 18s. 9d. ($111.42), while the same quantity of manufactured wheat will only give our laborers £1 9s. 4d. ($7.13). as the flour pays only 2d. (4 cents) per bag landing.

*The Maltese salm is equal to 1 imperial quarter.

The above figures show what wages our laborers would earn on 100 salms. Now, at the rate of 400 salms per day, they would earn during the year £33,488 ($162,969) through the importation of wheat; this sum now goes to the foreign laborer.

Would it not be wiser to stop the ruinous trade in flour and push forward the milling industry?

This is the most important of several articles that have recently appeared in the local press, and it is believed that it is inspired by other influence than the large flour and wheat dealers, for the reason that, as a local merchant remarked to me, "there is more money in flour than in wheat; consequently we buy flour." The Government fosses are usually well stocked with wheat, but at the present time there is a shortage.

POTATOES.

Malta produces very good potatoes, and I see no reason why one or two cargoes could not be landed at New York in January or February each year. It would be possible for them to reach the United States even earlier. Several crops are raised annually. In quality, the Maltese potato is similar to that raised in Bermuda. As an extremely early vegetable, I believe it would meet with ready sale in America.

HEATING STOVES.

From November until April, the weather often becomes very chilly in Malta. The houses are not well supplied with grates or stoves, and movable oil stoves are being more and more used for heating purposes. The same may also be said of gas stoves. As a rule, the stoves on sale here are of German or English manufacture. I believe that the American article, retailing at not more than $4 or $5, would prove successful in this market. In the matter of gas stoves, perhaps it would be well to address the local manager of the Mediterranean Gas Company. This company supplies its consumers with many appliances of this nature.

CUMIN AND FENNEL SEED.

I have recently received requests for addresses of American firms interested in buying cumin and fennel seed. I am told that of late large quantities of these products have been shipped from Genoa and Naples to the United States. The Maltese product is said to be very superior.

IRON AND STEEL.

Certain American firms have recently written to this consulate for information in regard to the local demand for iron and steel. I have been able to reply only in a general way, giving such data as could be gathered offhand. Official statistics only cover the imports of metals, whether raw or wrought, that are affected by the local customs laws. In what quantity or shape steel is imported

here can not be ascertained with any degree of accuracy, but that some steel and iron are used is an undoubted fact. Structural steel—girders, for instance—is used to a very large extent. Carpenter's, engineer's, and other tools are generally imported. The Maltese make some of their own implements, such as picks, wedges, mallets for stone working, hoes, and other agricultural appliances. Iron is exclusively employed for this purpose, and is tempered by a primitive process which, however, appears to have met their requirements for generations. The Maltese plows are the same as those in use hundreds of years ago.

In regard to stone-working implements, and indeed all other kinds, the Maltese first considers the question of cost. The unsophisticated workman generally prefers to sacrifice time and labor rather than invest in a tool or machine which would take all of his scanty funds to buy but would amply repay him in the long run. There are only a few machine shops here, but they display a fair amount of skill, especially in work incidental to steamships, railways, and flour mills. The railroad running out of Valletta for a distance of 8 miles is owned by the local government. It has its own machine and repair shops, and I have no doubt that the government would purchase modern tools and machines, if it were properly approached. A letter to the chief secretary to the government would probably secure further information on this point. It would also be well to correspond with the officer commanding royal engineers, as well as the admiral superintendent of His Majesty's dockyard. Both of these departments use large quantities of steel and iron.

In this connection, I would point out the value of sending personal representatives here. This applies to all lines of goods, and I believe it would be the best and most effective means of opening up trade. The representative possessing the necessary technical knowledge, equipped with a line of samples, and prepared to book orders can secure more business than can be obtained through any number of catalogues and price lists.

GOVERNMENT CONTRACTS AND TENDERS.

The local government frequently advertises for bids for supplies, such as electric-light carbons, tools, iron girders for structural purposes, printing paper, etc. The time for closing the bids is usually so short that I have never had an opportunity to report them for the benefit of our manufacturers. I would, however, advise such of our firms as have London representatives to instruct them to frequently pay a visit to the office of the Crown agent in that city, where bids for supplies for Malta are received.

JOHN H. GROUT,
Consul.

VALLETTA, *March 6, 1902.*

STRIKE IN TURIN.

Consul Cuneo reports from Turin in regard to the recent labor troubles in that city. The difficulty, he says, began early in February. The employees of the gas companies demanded increase of pay and a reduction of working hours, which the companies declined to grant. The men struck, but their places were filled after a certain time, and work was resumed. The general sympathy was with the companies, as it was believed that the men's demands were unreasonable. An attempt to induce the street-car men to join in the strike was ineffectual; but the bakers, while announcing that they had no grievances, went out because of sympathy with the gas strikers; and employees of various manufacturing industries in the city and suburbs, including men from the railroad shops, increased the number to about 14,000. The employees of one establishment refused to go out, but as the property was threatened, the owner advised them to stop work for a time, as a solution of the critical situation. The men accepted his advice.

The prompt action of the mayor of Turin prevented what might have been a riot. Soldiers were brought from the neighboring towns to protect life and property. Many places of business were closed during one day, but at no time was the running of the street cars interfered with. A compromise was finally reached, on condition that the gas companies should reinstate 224 of the 534 men who originally struck.

RUM IN SPAIN.

In view of the proposed acquisition of the Danish Antilles and the extension of United States commerce through the West Indies in general, I consider it opportune to call the attention of our merchants to the large trade in this country in West Indian rum, mostly from Jamaica and Martinique. The trade at present is chiefly in the hands of French houses, with agents or branch establishments in Catalonia.

I inclose specimen of a label used on bottles, for the guidance of future importers.* Great importance is attached here to elegance of shape and attractive appearance of bottles, while artistic posters are indispensable in developing business.

Rum up to 22° Cartier pays a duty of 160 pesetas (about $22.20)

* Filed in the Bureau of Foreign Commerce, where it may be examined by parties interested.

per hectoliter (26.417 gallons), and the current retail price is 44 pesetas (about $6.20) per case of 12 bottles.

A great many adulterated and imitation rums are offered here, but they are so inferior that they do not interfere much with the sale of the genuine product.

R. M. BARTLEMAN,

VALENCIA, *March 24, 1902.* *Consul.*

ALMONDS AND RAISINS AT MALAGA.

For the information of importers of almonds and raisins in the United States, as well as of the growers of those products, I have to report that the stock of Jordan almonds in this market is virtually exhausted. There are, perhaps, a few hundred boxes still to be had, but it would be impossible for any exporter to fill a large order for bona fide Jordans. The crop of 1901 amounted to about 80,000 boxes, and these have virtually all been marketed in the United States and London at prices ranging from $6.50 to $8.25 per box of 25 pounds.

The prices of Jordans for the past two years have been higher than ever before known, and, unless California succeeds in producing these almonds, there is no reason to believe that the prices will fall, as the demand is always steady.

There are a few thousand boxes of Valencias on hand, but these will probably be marketed within the next sixty or ninety days.

The comparative prices of Jordans and Valencias f. o. b. Malaga for this year and last year at the present season are:

Description.	1901.	1902.
Jordans*	$7.00	$8.25
Valencias*	4.00	3.55

*These prices are for the grade most in demand, that known as "confectioners." They do not have reference to the fancy grades.

In the matter of Malaga raisins, it may be stated that all the clusters of last year's crop have been marketed. There are still ample stocks of London layers, however, the current price of which is 80 cents per box f. o. b. Malaga.

BENJ. H. RIDGELY,

MALAGA, *March 24, 1902.* *Consul.*

COMMERCE OF SWITZERLAND IN 1901.

From figures published by the customs department at Berne, it appears that the total export from Switzerland during the year ended December 31, 1901, was $161,436,589, as against $161,363,382 for 1900, showing an increase of $73,207. The imports amounted to $211,937,613, as against $214,444,172 for 1900, showing a decrease of $2,506,559.

A marked increase of $1,549,371 is noticed in the export of watches and clocks; of $720,465 in food stuffs, wines, and tobacco; of $1,474,398 in silks; and of $338,334 in animals. A decrease is noticed in the following items: Machines and vehicles, $456,746; cotton goods, $3,214,084; woolens, $197,827; and straw goods, $406,394.

The imports show an increase in fertilizing matter of $196,371; leather and shoes, $54,667; tin, $190,043; precious metals other than money, $501,221; food stuffs, wine, and tobacco, $3,008,362; oils and fat, $203,229; silk, $2,162,809; and animals, $296,391. There was a decrease in the imports of chemicals of $172,106; wood, $374,145; machines and vehicles, $1,553,580; iron, $2,781,579; brass, $609,940; mineral matter, $1,335,580; beer, wine, and alcohol in barrels, $641.142; and cotton, $1,337,810.

HENRY H. MORGAN,
Consul.

AARAU, *March 20, 1902.*

PROPOSED ELECTRIC POWER FOR SWISS RAILWAYS.

Two months ago, an interesting study was published by L. Thormann, a Zurich engineer, on the possibilities of substituting electricity for steam on the Swiss railways. The idea itself is not a new one, but it has never received such expert investigation.

The fact that Switzerland is dependent on foreign countries for all the coal she consumes—not an ounce thereof being produced in the country—has drawn attention to the great unemployed water power, and has given rise to many propositions tending to promote the country's independence in traffic and industry. It is also not entirely beyond the limits of possibility that some of the coal-producing countries from which Switzerland draws her supply may pass laws prohibiting the export of coal, and thus force her to buy at ruinous prices.

Engineer Thormann proves that it is quite possible to raise sufficient water power to operate all the Swiss railways, but at the same time he shows that it is a mistake to believe that the expenses of the traffic would be thereby decreased to any considerable extent. The cost of the transformation and reconstruction would be heavy, and an amortization of the invested capital would be impossible.

The five principal Swiss railway lines demand about 30,000 horsepower a day. To guarantee this, 60,000 horsepower of high tension alternating electric current would be required, to which the necessary reserve would have to be added.

The question whether the available water power of the country would be capable of supplying this power is answered in the affirmative. Thormann, without taking into consideration the powerful waterfalls, names the following works, which are either in course of construction or designed:

Name of works.	Horse-power.	Name of works.	Horse-power.
Sihlwerk, near Einsiedeln	20,000	Montbovon (Vaud)	1,500
Laufenburg on the Rhine	10,000	Kander (Bernese Alps)	1,500
St. Maurice	5,000	Sense (Fribourg)	1,000
Wangen on the Aare	5,000	Gurtnellen	1,500
Beznau on the Aare	5,000	Göschenen	1,500
Wäggithal (Schwyz)	5,000	Ritomsee	8,000
Fribourg-Hauterive	4,000	Giornico	4,000
Rheinau	3,000	Marobbia	1,000
Hagneck, near Biel	2,000	Verzasca	1,000
Doubs, near Puntrut	2,000	Total	86,000
Vallorbe (Jura)	2,000		
Lungernsee (Unterwalden)	2,000		

As this would be more than sufficient, the surplus could be used for industrial purposes.

The cost of the establishment would be very great. The writer calculates it at 161,000,000 francs ($31,073,000), viz: Rolling stock, 40,000,000 francs ($7,720,000); conducting cables and miscellaneous, 70,000,000 francs ($13,510,000); and commutator stations, 51,000,000 francs ($9,843,000). He shows, however, that although the direct saving would not be important, the country would profit enormously, as the commercial balance of Switzerland would become more favorable and the vast amount expended for coal would remain in the country. The general utilization of water power throughout the country would also mean a valuable encouragement for other industries.

The study of Mr. Thormann has attracted much attention. That the project is no longer regarded as Utopian is proved by the meeting of electrical engineers referred to in one of my previous reports—

January 23, 1902*—and more recently by the fact that the "Maschinenfabrik Oerlikon" has made an application to the Federal Government for a concession to establish a line of 20 kilometers (12.4 miles) of electric standard-gauge railway for experimental purposes. There is no doubt that this concession will be granted.

HENRY H. MORGAN,
AARAU, *March 7, 1902.* *Consul.*

COMMERCIAL TRAVELERS AND CHEAP RAILWAY RATES IN SWITZERLAND.

In 1901, Switzerland issued 25,772 permits to commercial travelers, against 24,687 in 1900; 2,290 of the number for 1901 were delivered on payment of a license tax, and the income from this source was 327,790 francs ($63,263.47).

There is a system of issuing tickets in Switzerland that enables one to travel at will on all trains and most lake steamers for a very reasonable price. Thus, exporters desiring to investigate the country can send a representative to any and all points at an expense little in excess of hotel bills.

The prices of these tickets for various lengths of time are:

Duration.	First class.		Second class.	
	Francs.		*Francs.*	
15 days	70	$13.51	50	$9.65
30 days	110	21.23	75	14.47
3 months	270	52.11	190	36.67
6 months	420	81.06	295	56.93
1 year	670	129.31	470	90.71

Commercial travelers from a country where no reciprocal arrangement exists pay a tax of 300 francs ($57.90) per calendar year and 200 francs ($38.60) per half year.

HORACE LEE WASHINGTON,
GENEVA, *March 8, 1902.* *Consul.*

AMERICAN LOOMS IN SWITZERLAND.

Among the American exportations of the coals-to-Newcastle kind may be mentioned the recent rather large shipments of ribbon looms to Switzerland. Even the men who buy them express surprise at finding themselves using an imported article in place of one which for generations has been manufactured here. These

*ADVANCE SHEETS No. 1272.

looms are much more expensive than those made in Swizerland, even leaving freight and duties out of account; but manufacturers find it profitable to use them because of their greater solidity of construction and the much larger amount of work they do. If it were not for the difficulty of readily adjusting them for the production of different widths and kinds of tissue, they would no doubt soon displace all other looms for weaving plain ribbons. But they are built to produce only one article, or a small number of articles of a particular kind on a large scale, after the American fashion.

GEORGE GIFFORD,

BASEL, *March 12, 1902.* *Consul.*

PROPOSED INCREASE OF SWISS IMPORT DUTIES AND AMERICAN TRADE.*

Switzerland is in a position to terminate all its commercial treaties with foreign countries in 1903, and in view of this event the Federal Council has laid before the legislative bodies a tariff bill establishing specific import duties in place of the general rates as well as of the conventional duties under the commercial treaties now in force.

The project submitted to the Swiss chambers is quite in the spirit of the measure now under discussion in Germany, the rates of duty being enormously increased for almost all classes of merchandise, except raw material not produced in the country.

The Federal Council, however, expressly states in its message to the two houses that it by no means intends or anticipates that the proposed duties will ever be actually collected. It is explained that it is what is familiarly known in continental countries as "a war tariff," to be put into force as a means of obtaining concessions from countries with which it will endeavor to negotiate new treaties of commerce. Its purpose is not fiscal, either; there is no desire to increase the income of the State from its import duties, but at most to prevent a diminution of this necessary fund. The real meaning of the bill, as is expressly declared, is protective and political.

In anticipation of the objection that one or all of the foreign nations with which the country is about to negotiate may refuse to make acceptable concessions and leave the Swiss people to enjoy the benefits of their war tariff, it is stated that the proposed duties are not after all so terrible, and, if necessary, can easily be borne without inflicting any economical or industrial injury on the people.

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*See ADVANCE SHEETS No. 1293.

But this last position is rebutted with decided emphasis by the greater number of the newspaper and other writers who are now eagerly discussing the subject. It is declared that, in the not improbable event of the actual application of the proposed tariff to imports, the cost of living will be increased to a point almost insupportable by the working classes; that agriculture will not derive from it the expected advantage, since it can not possibly supply the demand that is now met by imported products; and, finally, that Swiss industry, already hard pushed by competition, will be obliged to pay higher wages on account of the increased duties, and will thus be placed in an even less favorable position than at present with respect to its great commercial rivals. This last objection is of an importance that can hardly be exaggerated, since Switzerland is relatively the greatest exporting country in the world, not even England being excepted, and its exports are almost exclusively manufactured articles.

The reality of the peril to the workingman, and indirectly to the manufacturer and exporter, which would arise from the increased cost of living is clearly shown by two considerations pointed out by a writer in the Allgemeine Schweizer Zeitung. It is estimated that a laborer who earns 4 francs (77 cents) a day in Switzerland can live as well as his German colleague who earns 5 francs (96 cents), because the duties on the necessaries of life are so much lower in the former country. Another calculation shows that under the proposed tariff, the yearly expenses of living for a workingman's family consisting of five persons would be increased by nearly $40.

It is aside from the purpose of this report to show that the increased duties on some kinds of food products are due to the influence of the Bauernbund, an organization somewhat resembling our granges. This society, as well as the great industrial and commercial organizations of the land, was carefully consulted by the Federal Council when framing its bill. The protective movement is almost as distinctively agrarian as in Germany, with the important difference that in Switzerland the agricultural population is composed almost wholly of small holders and not of great landed proprietors, as in the neighboring country.

The best Swiss authorities, then, being of the opinion that for the first time really protective duties may be levied here within a few months, it is worth while to inquire what the effect would be on our twelve or fourteen million dollars of exports to this country.

Cereals and flour.—Under the law in force, these products pay only 6 and 50 cents, respectively, on the metric centner of 220 pounds. As stated in the message of the Federal Council, the farmers and millers desired to introduce high protective duties instead of

these moderate rates. Their ideal would have been the French system, which levies about $1.75 on wheat and as much as $2.12 on flour. But the Government, believing it to be unsafe to increase to this extent the cost of one of the prime necessaries of life in so highly developed an industrial country, refused to consider the suggestion; whereupon the farmers declared that the present duty on cereals being useless to them, they preferred to see it repealed. This proposition was rejected in turn, as it was felt that the State could not afford to lose the 1,250,000 francs ($217,125) revenue which the tax, small as it is, yields annually. Accordingly, cereals, pulse, and flour of all kinds will pay at most only the present rates.

Meats.—The proposed increase of duties on this important article of import from America is enormous:

Description.	Present rate.	Proposed rate.
Fresh meat.....per quintal...	$0.90	$2.40
Salt or smoked meat.....do.....	1.20	3.20
Preserved meat.....do.....	1.20	4.00

The duty on live cattle and swine is still higher, and is intended to be prohibitory.

Fruits.—Fruits in bulk or in bags, chiefly cider apples, remain free; but otherwise packed, they pay 30 cents a quintal (220 pounds), while dried or evaporated fruits, at times largely imported from America, are to be taxed from $2 to $3, instead of $1, as heretofore.

Leather.—The proposed law provides for imposing a duty of $4.50 per quintal on sole leather—just double the average present rate. A rather important American business would be destroyed in case the law were to go into effect.

Iron.—Pig iron remains subject to a duty of about 2 cents a quintal, supposed to represent 1 per cent of the value. Flat, square, and round iron and special shapes, at present paying 12 cents a quintal, have been divided into rather complicated classes, with a view to imposing a somewhat higher duty than at present on the larger sizes. Rails and sleepers of a weight greater than 55 pounds to the meter (39.37 inches) in length are to pay only one-half of the current rate of 12 cents, while those of less weight are subject to a higher tax than at present. The lower duty would apply to all material for the standard-gauge railways.

Tools.—Tools, hitherto dutiable at $2 or $3 as manufactures of wrought iron or steel, are now minutely divided into categories (a peculiarity of the new tariff as compared with the one now in force), with the result that the rates are considerably raised in nearly all cases. Files and rasps alone are divided into no less than three

classes, according to the length of the roughened surface. For scythes and sickles, which are manufactured by a single establishment in Switzerland, the present rate of $2 is retained. The Federal Council states in its message that scythes of a quality superior to those manufactured here are imported, especially from America.

Agricultural machinery.—The duty on implements like plows, harrows, etc., is raised from $1.20 to $1.80; that on machinery proper, from 80 cents to $2.

Coal.—Coal will continue, as heretofore, to be taxed 40 cents per railway carload of 10 tons. This duty is retained, against the decided opposition of economists, because, small as it is, it yields about 500,000 francs ($96,500) a year to the treasury.

The application, some months since, of the general Swiss tariff to imports from the United States has had little if any effect in checking the sale of American goods. The duties are higher in some cases than under the conventional tariff, the benefits of which we enjoyed before the termination—on the initiative of the United States—of our commercial treaty with Switzerland; but the most of our goods were not touched by the change, and the rates remained comparatively moderate, even on those articles subject to a higher duty than before. But, as will be seen from the above details, the duties imposed by the proposed law would, if actually levied, exclude several important articles now exported to the Swiss Confederation.

GEO. GIFFORD,

BASEL, *March 10, 1902.* *Consul.*

BELGIAN-UNITED STATES TRADE.

The time is now ripe for a general move for the markets of this part of Belgium. Business is improving, and the people are friendly toward American goods and readily recognize their merits. I believe an active campaign by a few up-to-date salesmen would be the means of greatly increasing our sales here.

In no line is this more apparent than that of machinery. Manufacturers have realized that they must have modern machinery and tools in order to keep pace with their foreign competitors; and now that the trade outlook is brighter, they are casting about for installations of the latest and best. Not only good salesmen to sell the machinery are needed, but competent American workmen to superintend its placing and operation.

During the past year, substantial progress has been made along all lines at Liege, but there is still room for more.

This part of Belgium also continues to increase its sales to the

United States, as the following figures show: During the last six months of 1901, the exports from this consulate to the United States amounted to $891,641.15, against $768,464.83 for the same period for 1900 and $663,231.04 for 1899; while for the first two months of 1902 they amount to $226,313.68, against $159,199.18 for the same period in 1901 and $142,716.30 for 1900. This gain was nearly all in firearms, of which gun barrels, rough bored, represent an important part, being $52,230.67, against $41,516.49 last year, notwithstanding the reduction in price of the same grades of barrels, which averages about 10 per cent.

The kind of gun sent to the United States is undergoing a material change for the better, as but few of the cheaper steel barrels are now shipped, while the Damascus barrels, which are a specialty of this locality, are increasing. The gun-barrel manufacturers are agitated just now because of the threatened enforcement of an old law—a dead letter for several years—which provides that all firearms and parts leaving Belgium shall carry the Belgian Government proof mark. This will add from 10 to 15 per cent to the cost; besides, many of the lighter weight of barrels made for the United States will not stand the severe Belgian test. Should this law be enforced, it will materially affect the export trade.

During February, there was shipped to the United States 675 tons of steel rails at $19.21 per ton. These are the first that have been shipped from here in years, but the parties making the shipments inform me that they expect to continue for some time.

ALFRED A. WINSLOW,

LIEGE, *March 13, 1902.* *Consul.*

CHARCOAL AND PIG IRON IN THE NETHERLANDS.*

CHARCOAL.

But little charcoal is used in the Netherlands. No official statistics exist as to the amount imported and consumed; but the only dealers in this article in my consular district, Messrs. E. W. Hisschemoller & Son, inform me that the total importation into the Netherlands does not amount to 1,000 tons. The price paid for charcoal of good quality, the so-called "retort coal," is 300 florins ($120) per 10 tons, delivered at Rotterdam. The charcoal imported is manufactured in Germany.

Messrs. Hisschemoller & Son have requested me, with a view to the importation of American charcoal, to ask American exporters

* Report made in reply to inquiries by a resident of Florida, to whom the original has been sent.

if the charcoal produced in the United States is "meiler" or "retort" coal; if of the first kind, there will be no sale for it in the Netherlands, but if retort coal, they would like to receive quotations. The importers further state that as charcoal is an article which in Germany must be disposed of at any price, the German exporters would, in the event of American competition, undoubtedly lower the prices which are now current.

PIG IRON.

No statistics are available giving the number of tons of pig iron imported at Rotterdam or into the Netherlands. The shipbuilding company "Feyenoord" says in a letter to this consulate:

Our consumption of pig iron of all descriptions is about 2,200 tons annually, and during the last three or four years we have used about 600 tons of American pig iron of the medium qualities. The prices are strictly in competition with Scotch pig iron and fluctuate correspondingly.

Messrs. Roth & Pfeiffer, importers of this city, state with reference to pig iron:

As far as we know, no pig iron has been imported into the Netherlands from the United States or Canada since March, 1901, prices not allowing any transactions; nor will there be for some time, as America at present buys German and English pig iron.

In 1899 and 1900, there were large transactions in American pig iron, but then the American quotations c. i. f. European ports were lower than the Middlesboro prices.

The quotation for pig iron, Middlesboro No. 3-G. M. B., was, on March 3 last, from 51s. 9d. to 52s. ($12.57 to $12.63) per ton c. i. f. Rotterdam.

S. LISTOE,

ROTTERDAM, *March 13, 1902.* *Consul.*

PEAT AS FUEL FOR SWEDISH INDUSTRIES.

My previous report on this subject* has caused several correspondents to make inquiries about the result of the experiments with peat as fuel for locomotives in Sweden. The question of using peat in the industries has for several years received attention. Two or three inventors have tried to solve the question by exposing the peat to strong heat in closed retorts, thus producing a sort of charcoal, which was used either in the form of lumps or of powder. In the latter case, special furnaces were required. One factory has two ovens, or furnaces, in the first of which the peat was converted into gases, which were burned in the second furnace, under the boiler. These methods have not come into general use; they were probably found too expensive.

*ADVANCE SHEETS No. 1196; CONSULAR REPORTS No. 256.

Swedish engineers have studied the manufacture of peat briquettes in Germany, and the present tendency here is to use common peat, rendered compact and transportable by being pressed by machinery. It is reported that a couple of iron works use peat with good results in the blast furnaces, instead of wood or charcoal. The railroads are also experimenting with this fuel, and it is said with success, though I can not obtain exact figures, as the tests are not yet concluded. It is alleged, however, that the use of peat does not offer any economical advantage; it has been ascertained that 1 pound of peat will produce only 4 pounds of steam, while good English coal will produce from 6 to 7 pounds. Peat costs from $2.68 to $2.95 per ton and English locomotive coal from $3.61 to $4.70 per ton. There is a movement, however, to make peat cheaper by reducing the railroad freight rates for this fuel, and improved methods of manufacture may also lessen the price.

Even if the result of the tests has not proved in all respects satisfactory, it may be inferred that they have been worth the trouble, for the managers of the State railroads have ordered a locomotive built specially for the use of peat. It is reported that the boiler for this locomotive is being constructed by Motala Werkstad, Motala, Sweden, and that it is nearly finished and will be delivered within a few days.

ROBERT S. S. BERGH,

GOTHENBERG, *March 12, 1902.* *Consul.*

FLOUR IMPORTS OF WESTERN NORWAY.

I give below a statement of the import of wheat flour into Bergen, Stavanger, and Drontheim (the largest ports in this consular district) during 1901:

BERGEN.

From—	Quantity.	
	Kilograms.	*Pounds.*
Sweden	19,600	43,120
Denmark	323,157	710,945.4
Germany:		
Hamburg	1,419,775	3,123,505
Bremen	1,245,519	2,740,141.8
Other ports	1,592,500	3,503,500
Netherlands	501,466	1,103,226
Belgium	1,490,824	3,279,813
England	538,942	1,185,676
France	11,662	25,656.7
United States	1,051,398	2,313,078
Total	8,194,843	18,048,662

Importers of flour.

Gerdt Meyer.
Haggernas Dampmolle.
Ragnar E. Nass.
Paulsen & Dekke.
Bjorsvigs Molle.
Skaalevigs Molle.
Emil Jessen.
Alb. Mohns Sonner.
Joh. R. Rogge.
O. Bjorneseth & Co.
M. G. Rüsoen.
Wilhelm Olsen.
T. Fronsdahl.

DRONTHEIM.

From—	Quantity.	
	Kilograms.	*Pounds.*
Denmark	368,864	826,255
Germany	1,550,321	3,472,719
Great Britain	1,828,279	4,095,344
Belgium	1,845,562	2,342,058
Holland	199,140	446,073
United States	938,544	2,102,338
Total	5,930,710	13,284,787

Importers of flour.

Jenssen & Co.
Jacob Larsen.
Jacob Halseth.
H. F. Klingenberg.
Holm & Co.
L. Storo, jr.
E. Wahl & Co.
Theodor Kloe.

STAVANGER.

The total import of wheat flour from all countries (separate statements not obtainable) was 2,069,749 kilograms (4,563,226 pounds).

Importers of flour.

Bertelsen & Co.
T. W. Holst.
Johnsen & Ekland.
Gustav Soma.
Erik S. Monsen.
Kornelius Olsen.
R. A. Tdsoe.
Stavanger Dampbageri.

VICTOR E. NELSON,
Consul.

BERGEN, *March 17, 1902.*

IMPORTATION OF DOGS INTO GREAT BRITAIN.

The Department has received from the British embassy, Washington, under date of April 6, 1902, copy of an order regarding the importation of dogs into Great Britain, which takes the place of the former order on the subject.* The new regulations came into force on March 15, 1902. It is requested that the widest possible publicity may be given the new order, so that the inconvenience

*See ADVANCE SHEETS No. 834; CONSULAR REPORTS No. 242.

to the traveling public may be minimized as far as possible. The memorandum and order of the Board of Agriculture read:

IMPORTATION OF DOGS.

The Board of Agriculture again desire to draw the special attention of the public to the fact that after the 15th of March next the landing in Great Britain of dogs brought from any country except Ireland, the Channel Islands, and the Isle of Man will be subject to article 2 of the importation of dogs order of 1901, which expressly provides that every imported dog must be detained and isolated at the expense of its owner upon premises in the occupation or under the control of a veterinary surgeon, which shall have been previously approved in writing by the board for that purpose, for a period of six calendar months, during which period the dog may not be moved from the place of detention except as provided in that article. This article does not apply in the case of an imported dog which is intended to be exported from Great Britain within forty-eight hours, or of a performing dog, with regard to the detention and isolation of which special conditions will be imposed by the license authorizing its landing.

The memorandum as to the importation of dogs into Great Britain from abroad, dated August 8, 1900,* will cease to have effect when article 2 of this order comes into operation.

T. H. ELLIOTT,
Secretary.

4 WHITEHALL PLACE, LONDON, S.W.,
February 26, 1902.

ORDER OF THE BOARD OF AGRICULTURE.—IMPORTATION OF DOGS ORDER OF 1901.

[Dated December 12, 1901.]

The Board of Agriculture, by virtue and in exercise of the powers in them vested under the diseases of animals acts, 1894 and 1896, and of every other power enabling them in this behalf, do order, and it is hereby ordered, as follows:

Restriction on importation of dogs.

1. An imported dog, that is to say, a dog brought to Great Britain from any other country, except Ireland the Channel Islands and the Isle of Man, shall not be landed in Great Britain unless its landing is authorized by a license of the board previously obtained, and when landed it shall be subject to the provisions of this order, and to the conditions inserted in any license authorizing its landing.

Detention and isolation of imported dogs.

2.—(1.) An imported dog shall, for a period of six calendar months after its landing, be detained and isolated at the expense of its owner upon premises in the occupation, or under the control, of a veterinary surgeon, which shall have been previously approved in writing by the board for that purpose, and such premises are in this order referred to as the "place of detention."

(2.) During the said period, the dog shall not be moved from the place of detention except to another place of detention or to a vessel for exportation, and in either case only with a license of the board authorizing such movement.

(3.) This article shall not apply to (*a*) an imported dog which is shown to the satisfaction of the board to be a bona fide performing dog; or (*b*) to an imported dog which is intended to be exported from Great Britain within forty-eight hours after its landing; but every such dog shall be subject to the other articles of this order.

(4.) This article shall come into operation on the fifteenth day of March, one thousand nine hundred and two.

*See ADVANCE SHEETS No. 834; CONSULAR REPORTS No. 242.

Conditions of license.

3. The board may insert in any license granted by them under this order authorizing the landing of an imported dog such conditions as they think necessary or desirable for the following purposes:

(i.) For prescribing and regulating the detention and isolation of the dog so far as the same is not prescribed and regulated by this order;

(ii.) For prescribing the person by whom and the premises on which the dog shall be detained and isolated;

(iii.) For regulating the movement of the dog to the place of detention, or vessel for exportation, and for prohibiting or regulating its movement during a period of six calendar months after its landing, or until its exportation, as the case may be;

(iv.) For prescribing the confinement of the dog in a suitable hamper, crate, box, or other receptacle during the movement of the dog by railway, or along a highway or thoroughfare;

(v.) For prescribing the mode of isolation of the dog;

(vi.) For prescribing the muzzling of the dog;

(vii.) For prescribing the notice to be given of the death or loss of the dog, or of any matter arising in connection with the movement, detention, or isolation of the dog and the persons by whom and to whom the notice is to be given; and

(viii.) For prescribing the production of a license for inspection by an officer of the board, or constable, or officer of customs.

Notice of detention in case of illegal landing.

4.—(1.) Where an imported dog has been landed in contravention of this order or of any order hereby revoked, the board, or an inspector of the board, may give notice to the owner or person in charge of the dog requiring that, within a time specified in such notice, the dog shall be moved (*a*) to a vessel for exportation, or (*b*) to a place of detention for the purpose of detention and isolation in accordance with the provisions of such notice.

(2.) Such provisions may be inserted in the notice as the board may think necessary or desirable for any of the purposes mentioned in the preceding article.

(3.) A notice under this article may, subject to any instructions issued by the board, be given by an inspector of the local authority.

(4.) If the owner or person in charge of the dog, after receipt of such notice, fails to move the dog as required by the notice, he shall be deemed guilty of an offense against the act of 1894.

Withdrawal of license in cases of default.

5.—(1.) If the owner or person in charge of an imported dog is convicted of an offense under this order in relation to the dog, the board, or an inspector of the board, may give notice to such owner or person in charge, requiring him to move the dog to a vessel for exportation within a time specified in such notice.

(2.) If the owner or person in charge of the dog, after receipt of such notice, fails to move the dog as required by the notice, he shall be deemed guilty of an offense against the act of 1894.

Relanding prohibited of imported dogs moved to vessels for exportation.

6. An imported dog which has been moved to a vessel for exportation in accordance with a license or notice under this order shall not be relanded in Great Britain without a license of the board authorizing such landing.

Seizure of dogs in case of default.

7.—(1.) If an imported dog is not detained and isolated as required by this order or by the conditions or provisions of any license or notice thereunder, an inspector of the board may seize the dog and thereupon the board shall detain and isolate it

at the place of detention specified in the license or notice, or any other place of detention selected by them, in accordance with the requirements of this order or the said conditions or provisions.

(2.) If the owner of the dog does not, within ten days after the expiration of the period of detention specified in this order or in the license or notice, claim the said dog from the board and pay to them their expenses of detaining and isolating the dog, the board may destroy or otherwise dispose of the dog as they think expedient.

Proceedings under customs acts for unlawful landing.

8.—(1.) If any person lands or attempts to land a dog in contravention of this order, he shall be liable, under and according to the customs acts, to the penalties imposed on persons importing or attempting to import goods the importation whereof is prohibited by or under the customs acts, without prejudice to any proceedings against him under the act of 1894 for an offense against that act.

(2.) The dog in respect whereof the offense is committed shall be forfeited under and according to the customs acts in like manner as goods the importation whereof is prohibited by or under the customs acts.

Detention of dogs on vessels in port.

9.—(1.) Every dog to which this article applies shall at all times while on board a vessel in any port in Great Britain be—

(*a*) Secured to some part of the vessel by a collar and chain and muzzled with a wire-cage muzzle so constructed as to render it impossible for such dog while wearing the same to bite any person or animal, but not so as to prevent such dog from breathing freely or lapping water; or

(*b*) Confined in an inclosed part of the vessel from which the dog can not escape.

(2.) If any dog to which this article applies shall die, or be lost from a vessel, in any port in Great Britain, the person in charge of the dog shall forthwith give notice of such death or loss to the board.

(3.) The provisions of this article shall apply to every imported dog which is not accompanied by a license issued by the board authorizing the landing of such dog in Great Britain.

Extension of certain sections of diseases of animals act, 1894.

10. Dogs shall be animals, and rabies shall be a disease, for the purposes of the following sections of the act of 1894 (namely):

Section forty-three (powers of police);

Section forty-four (powers of inspectors);

Section fifty-six (unlawful landing);

And also for the purposes of all other sections of the said act containing provisions relative to or consequent on the provisions of those sections and this order, including such sections as relate to offenses and legal proceedings.

Local authority to enforce order.

11. The provisions of this order, except where it is otherwise provided, shall be executed and enforced by the local authority.

Offenses.

12.—(1.) If a dog is landed in contravention of this order, the owner and the charterer and the master of the vessel from which it is landed, and the owner of the dog, and the person for the time being in charge thereof, and the person causing, directing, or permitting the landing, and the person landing the same, and the consignee or other person receiving or keeping it, knowing it to have been landed in contravention as aforesaid, shall, each according to and in respect of his own acts and defaults, be deemed guilty of an offense against the act of 1894.

(2.) If a dog is moved in contravention of this order, or of the conditions or provisions of a license or notice thereunder, the owner of the dog, and the person for the time being in charge thereof, and the person causing, directing, or permitting the movement, and the person moving the dog, and the consignee or other person receiving or keeping it, knowing it to have been moved in contravention as aforesaid, and the occupier of the place from which the dog is moved, shall, each according to and in respect of his own acts and defaults, be deemed guilty of an offense against the act of 1894.

(3.) If a dog is not kept isolated as required by this order, or by the conditions or provisions of a license or notice thereunder, the owner of the dog, and the person for the time being in charge thereof, and the occupier of the place where such dog is detained, and the person failing or neglecting to isolate the dog, shall, each according to and in respect of his own acts, defaults or omissions, be deemed guilty of an offense against the act of 1894.

(4.) If a dog is not secured, muzzled, or confined as required by this order, or by the conditions or provisions of a license or notice thereunder, the owner of the dog, and the person for the time being in charge thereof, and the master of any vessel on board which the dog is or has been carried to Great Britain, shall, each according to and in respect of his own acts and defaults, be deemed guilty of an offense against the act of 1894.

(5.) If a person with a view to unlawfully evade or defeat the operation of this order, or of the conditions or provisions of a license or notice thereunder, allows a dog to stray, he shall be deemed guilty of an offense against the act of 1894.

(6.) If the owner or person in charge of a dog fails to give, produce, or do any notice, license, or thing which by this order, or by the conditions or provisions of a license or notice thereunder, he is required to give, produce, or do, he shall be deemed guilty of an offense against the act of 1894.

Revocation of orders.

13.—(1.) The orders described in the schedule to this order are hereby from and after the commencement of this order revoked: Provided that such revocation shall not invalidate or make unlawful anything done under any order hereby revoked, or affect any license or authority granted, or any right, title, obligation, or liability accrued thereunder before the commencement of this order, or interfere with the institution or prosecution of any proceeding in respect of any offense committed against, or any penalty incurred under, any order hereby revoked before the commencement of this order.

(2.) A license granted under any order hereby revoked shall, from and after the commencement of this order, have effect as if it had been granted under this order, and may be enforced accordingly.

Interpretation.

14. In this order, unless the context otherwise requires,—

"The board" means the Board of Agriculture:

"The act of 1894" means the Diseases of Animals Act, 1894:

"Master" includes a person having the charge or command of a vessel:

Other terms have the same meaning as in the act of 1894.

Extent.

15. Except where otherwise expressed, this order extends to Great Britain.

Commencement.

16. This order (except article 2 thereof) shall come into operation on the first day of January, one thousand nine hundred and two.

Short title.

17. This order may be cited as the importation of dogs order of 1901.

In witness whereof, the Board of Agriculture have hereunto set their official seal this twelfth day of December, one thousand nine hundred and one.

T. H. ELLIOTT,
Secretary.

[SEAL.]

Schedule.—Orders revoked.

Short title.	No.	Date.
The importation of dogs order of 1897	5611	May 7, 1897
The importation of dogs (amendment) order of 18. 8	5810	June 14, 1898
The importation of dogs (amendment) order of 1900	6194	Dec. 5, 1900

LACE AND HOSIERY AT NOTTINGHAM.

LACE.

The month of March has opened well in the lace market, and the season continues to be one of the best on record. Manufacturers are especially rushed, owing partly to the recent severe fires, which destroyed or put out of use about one hundred machines. Manufacturers of fancy millinery lace have booked considerable orders, and the demand exceeds the supply. Plain and embroidered valenciennes, torchons, clunies, and new fancy specialties are most in favor. As some of the goods have linen threads, the prices run above the ordinary average. The demand comes from the home and European markets, as well as from America and the British colonies and possessions. India is taking a fair quantity of goods. Some limited orders are being placed for cotton embroidery trimmings, but the total output is restricted. Crochet laces, tattings, and heavy warp goods are in average request. The silk-lace branches are still depressed. There is a steady market for heavy furniture lace, curtains, window blinds, and toilets. The continental demand for nets has somewhat revived, and orders continue to be placed for spotted and mosquito nets.

HOSIERY.

Business is not active in this trade. Certain specialties of cashmere and merino goods are most in request. Manufacturers of underwear are doing well, and machinery producing merino and natural wool combinations is fairly engaged. There is an increased demand for embroidered silk goods.

S. C. MCFARLAND,
Consul.

NOTTINGHAM, *March 6, 1902.*

AMERICAN GAS COAL IN DENMARK.

I give below the report (translated) of the results of a trial of American coal at the Copenhagen gas works:

This coal was used for twenty-four hours on the 1st of March in the production of gas in retort house No. 1, with the following results: Quantity of coal used, 144.14 tons; gas produced, 1,599,300 cubic feet; gas produced by each ton of coal, 11,091 cubic feet; power of the gas, 16.52 Hefner light (76 Omm. 15° C.); coke resulting from each ton of coal, 16.37 pounds; ashes in the coke, 7½ per cent.

The coal was in large pieces, so that, before using, crushing was necessary. One should have machinery for that purpose.

The coke was firm, substantial, and gave a good heat, but left considerable slag in the fire box. We consider the coke good for industrial use. In stoves, it burns well, giving off strong heat, but requires good draft. Regarding the residuum of tar and ammonia water, little can be said from so brief a trial.

As compared with English gas coal, in regard to the production of gas, the American coal stands certainly as high and in some respects higher than the very best.

The result, as regards amount of coke, is like that obtained from good English gas coal, but the quality is somewhat higher.

This coal must therefore be considered a specially good gas coal.

This coal was sold here at 20s. ($4.86) per ton c. i. f. With better shipping arrangements and larger cargoes, this price can undoubtedly be much reduced. Two cargoes of Canadian coal of 5,000 tons each have just been sold here at 15s. 3d. ($3.63) c. i. f. Such a difference in price is certainly unnecessary.

J. C. FREEMAN,
Consul.

COPENHAGEN, *March 21, 1902.*

COMPARATIVE ADVANTAGES OF THE SEA AND CANAL ROUTES TO THE BALTIC.

The Department has received from Consul Freeman, of Copenhagen, under date of March 5, 1902, a statement from the Danish point of view as to the comparative advantages of the sea route and the Kiel Canal route to the Baltic. In a report from Berlin, published in ADVANCE SHEETS No. 1190 (November 15, 1901)—CONSULAR REPORTS No. 256 (January, 1902)—it was claimed that the canal dues paid by the U. S. S. *Enterprise* amounted to 400 marks ($95.20) and those of the U. S. S. *Buffalo* to 900 marks ($214.20), "which would apparently indicate that it is less expensive for our ships to go through the Kaiser Wilhelm Canal than to round the Danish Peninsula, taking into consideration the saving in time and coal." Consul Freeman states that the Danish advocates of the sea route, touching

at points in Denmark, contend that, according to the orders of the United States Navy Department, ships rounding the Danish Peninsula are not under steam, but under sail, so that the expense for coal is nothing. Coal would have to be consumed in the passage of the canal and the Elbe. In the second place, the pay and subsistence of the officers and men are just the same at sea as in harbor, so that the saving in time, if time means expense, was nothing. It is thus claimed that for those two ships to go through the Kiel Canal cost the United States Government 1,300 marks ($309.40) more than it would if the ships had gone round the Danish Peninsula.

As to vessels in the merchant service, the captain of a steamer coming through the English Channel, past Dover, has before him the two routes—through the canal or round the peninsula. The two routes come together again at Bornholm, in the Baltic. It is 200 miles shorter via the canal—that is, for an ordinary steamer, twenty hours' time; but about ten hours of this is lost by the necessarily slow speed in the Elbe and the canal. Often, the remaining ten hours is also lost in gaining the mouth of the Elbe, on account of the fog and tide and because of detentions in the canal while waiting for ships going in the opposite direction. Even if it is not lost, the captain has before him the question whether the fuel and expense of the crew for ten hours will amount to as much as the canal dues.

For vessels coming north of Britain or from Scottish ports, or from Newcastle, West Hartlepool, or Hull, the route round the peninsula is of course shorter and cheaper.

The report above quoted from says, further, that "it has been possible to maintain the traffic" in the canal "without any interruption from ice, even throughout the severe winter of 1896–97, when the sound and belts were blocked with ice."

The traffic in the Danish Sound, it is claimed, has not been closed since 1895–96, except that in the severe winter of 1896–97, for five days, the assistance of ice breakers was in some cases called upon to clear the way for ships. The Copenhagen Harbor Board now has command of such powerful ice breakers that it may be safely expected that open traffic will be maintained. There is always a strong current running one way or the other in the Danish Sound and belts, amounting to at least 6 miles an hour. It would be difficult for ice to close a channel like that. It would remain open long after the still waters of the canal and the bay at its eastern terminus were closed with ice.

As to the canal remaining open after the Danish Sound and belts were closed with ice, it is argued that the canal would then be of no use, for long before the sound and belts, with their free connection with the North Sea, were obstructed, all the Baltic ports would

be closed and inaccessible, the Baltic itself would be filled with ice, and a vessel coming through the canal to the Baltic, supposing the canal to be open, could not reach a port and would have nowhere to go.

It is observed that from February 12 to the date of the consul's report, March 5, 1902, official telegrams from the Kiel Canal state: "Navigation closed for sailing vessels;" but the Danish Sound and belts have been perfectly free from ice every day during this winter.

CANADA'S MINERAL PRODUCTION IN 1901.

The mineral production of Canada during the year 1901, according to the preliminary statement of the geological survey, was valued at $69,407,031, of which $42,834,000 was metallic and $26,282,000 nonmetallic. The growth is equivalent to about 8 per cent over that of 1900—a rather moderate increase compared with what recent years have shown. There were various causes for this; a drop in the gold product of the Yukon and protracted labor troubles in British Columbia being among the number. The following from the records of the survey show how the industry has developed:

1886	$10,221,255
1890	16,763,353
1896	22,584,513
1900	64,488,037
1901	69,407,031

Gold, as a result of Yukon discoveries, occupies the first place, with $24,462,222, or more than a third of the whole; coal, with a value of $14,721,122, comes next. The metallic minerals, aside from gold, show a comparatively small figure in the table, all coming behind building materials in the total of their production; pig iron contributing only $1,212,113 from the product of home ore. Some of the branches of the industry have been established on a large scale only during the past few years. The values of the various products were:

Description.	Value.	Description.	Value.
Metallic.		*Nonmetallic.*	
Copper	$6,600,104	Actinolite	$3,126
Gold:		Arsenic	41,676
Yukon	18,000,000	Asbestus and asbestic	1,186,434
All other	6,462,222	Chromite (exports)	25,444
Iron ore (exports)	762,284	Coal	14,671,122
Pig iron from Canadian ore	1,212,113	Coke	1,264,360
Lead	2,199,784	Corundum	53,115
Nickel	4,594,523	Feldspar	4,710
Silver	2,993,668	Fire clay	5,920
		Graphite	28,880
Total metallic	42,824,698	Grindstones	55,690

Description.	Value.
Nonmetallic Continued.	
Gypsum	$340,148
Limestone for flux	183,162
Manganese ore (exports)	4,820
Mica	160,000
Mineral pigments:	
Baryta	3,842
Ochres	16,735
Mineral water	100,000
Molding sand	29,240
Natural gas	312,359
Peat	660
Petroleum	953,415
Pyrites	113,044
Salt	262,328
Talc	842
Total	19,821,072
Structural materials and clay products:	
Cement	
Natural rock	94,415
Portland	535,615
Nonmetallic—Continued.	
Structural materials and clay products—Continued.	
Granite	$155,000
Pottery	200,000
Sands and gravels (exports)	117,465
Sewer pipe	250,115
Slate	9,980
Terra cotta, pressed brick, etc.	278,671
Building material, including bricks, building stone, lime, tiles, etc.	4,820,000
Total structural materials and clay products	6,461,261
Total all other nonmetallic	19,821,072
Total nonmetallic	26,282,333
Total metallic	42,824,698
Estimated value of mineral products not returned	300,000
Grand total	69,407,031

In silver, while the increase in quantity is fair, there is less to record for the value on account of the lower prices.

In lead, the decrease is to be attributed to the difficulties encountered by the operators of the British Columbia mines, which produced nearly all the output. Prices were lower and trouble was found in profitably marketing the ores in the United States.

The low prices for copper, commencing as they did in the latter part of 1901, hardly affected the figures of production. The output showed a very large increase over that of 1900. In the Sudbury district of Ontario, the amount of copper contained in the shipments of matte was greater by over 25 per cent.

An increase of nearly 30 per cent in production of nickel is recorded. The price, which from 1895 to 1898 ranged from 33 to 36 cents per pound, was quoted in the New York market throughout the year 1901 at from 50 to 60 cents per pound.

Owing to the exploitation of the large deposit of iron ore of the Helen mine at Michipicoten, in Ontario, a considerable growth is evident in the country's production of this mineral. Some of the product goes to furnaces in Ontario, but the larger part is exported. Only the exports are credited in the table under this heading, the rest appearing under the item "pig iron." Adding to the exports the 156,613 tons of Canadian ore, etc., charged to Canadian furnaces, there is shown a total production of 462,812 tons.

In the production of pig iron in Canadian furnaces, an increase of over 184 per cent in quantity is recorded, while the estimated production from Canadian ore alone increased nearly 135 per cent.

These gains are due in a large measure to the completion of the furnaces of the Dominion Iron and Steel Company at Sydney, Nova Scotia.

The value of the steel product is not included in the general table. There were made during the year 41,948 tons (of 2,000 pounds each) of steel ingots, etc., all of which was worked up into bars, etc.

The figures of production for cement represent the sales and shipments only. Some 70,000 barrels remained in stock at the close of the year.

QUEER MINES.

A natural soap mine and a paint mine are two of the latest mineral discoveries in the northwest. Several soda lakes have been found in the foothills near Ashcroft, British Columbia. Their bottoms and shores are incrusted with a natural washing compound, containing borax and soda. No two analyses agree exactly as to the composition of the material; a New York analysis gives 26 per cent borax, while a Montreal chemist, from the same sample, gives 16 per cent borax. Tests prove the substance to be equal to the washing powders in common use. Trials by blacksmiths and farm workmen show that it will remove grease and dirt quicker than soap. A syndicate of British Columbia men has been formed to put the product on the market. About 275 tons of the compound have been cut and taken out of the lake. It is handled precisely as ice is handled. The blocks are more than 9 inches in thickness, are sawn into pieces of 15 by 18 inches, and weigh 50 pounds each. It is estimated that this lake alone contains 20,000 tons, proving that the industry, if successful, will reach large proportions.

JOHN L. BITTINGER,
Consul-General.

MONTREAL, *March 8, 1902.*

FLOUR IN THE FRENCH WEST INDIES.

Bread made from wheat flour is one of the principal articles of food in Guadeloupe and Martinique. In round figures, the annual per capita consumption of flour may be put down at half a barrel. This indicates a monthly consumption of from 5,000 to 6,000 barrels. These and all other figures in this report, except when specifically stated otherwise, are for Guadeloupe alone.

Until about a year ago, all flour was imported from the United States. During the past twelve months, however, efforts have been made to introduce the French product.

There is a discriminating duty in this colony in favor of French flour, as follows:

Description.	Duty.	
	Francs.	*Cents.*
Octroi ..... per barrel...	0.90	15.3
Tariff ..... per 100 kilograms (220.4 pounds)...	4.55	77.3
Statistics and wharfage ..... per barrel...	.30	5.1

The tariff per barrel, calculated at 90 kilograms (198 pounds) net, is 4.45 francs (75.6 cents). Therefore, the total duty on a barrel of American flour is 5.65 francs. This is payable in local paper currency, and at the present rate of exchange amounts to 96 cents gold.

French flour pays only the octroi and the statistics and wharfage duties, or 1.20 francs per barrel, equivalent to 20.4 cents gold. This is an advantage of 75.6 cents per barrel in favor of French flour.

In Martinique, the conditions are very different. All flour is admitted duty free. Both the French and the American products pay an octroi duty of 6.10 francs coin ($1.17) per barrel; French flour pays a duty of 10 centimes (1.9 cents) and the American 25 centimes coin (4.8 cents) per barrel for statistics and wharfage. The difference in favor of French flour is therefore less than 3 cents, and, as a result, none of the French product is sold in Martinique.

The freight on a barrel of flour from the United States to Guadeloupe is from 40 to 45 cents by steamer and about 35 cents by sailing vessel. The freight on a 196-pound bag of flour by sailing vessel from Nantes is about 26 cents. There is therefore a further advantage of about 9 cents in freight rates in favor of the French product. Very little flour is brought in barrels from France and comparatively little in bags from the United States.

About a year ago, in view of these conditions, a serious attempt was made to supplant American flour in this market. An initial importation of 200 bags was followed by monthly shipments of 800 bags. This flour was extensively advertised, and it was asserted that a given quantity of it would make as much bread of the very best quality as a 10 to 20 per cent greater amount of American flour. It was offered for sale at $5.36 per barrel, American flour at the same time selling for about $6 per barrel.

The French flour, of the mark "Grands Moulins de Corbeil," is said to be very rich in gluten. It was readily purchased at first for blending with the higher priced American flour, the proportion being 66 per cent American to 34 per cent French; but it was found that the bread was of a dark color. Attempts to use the French flour alone failed. The people here demand a flour that will make

an extremely white bread, with a dark, brittle crust, and the sale of the French product has greatly decreased. It is also asserted that the French flour deteriorates, when stored, far more rapidly than the American. I am informed that a considerable quantity of French flour has been in store here for two months or more, and that the importers are unable to sell it. Prices of all flours have fallen. American flour is to-day selling at $5.53 per bag or $5.70 per barrel with, according to the wholesalers, no profit. On the other hand, the French flour is sold at $4.85 per bag with a small gain.

It is said that this French flour is not ground from French wheat, but from Russian wheat, which, if milled and exported, enters France free of duty.

For many years, the standard flour in this market was that known as "Hungarian OO," and purchasers would insist on having from 40 to 60 per cent of this flour, taking the balance in other brands. The flour is still regarded as a standard, but "Pillsbury's Leader" is readily accepted now and seems likely to assume first place. "Hungarian OO" is no longer insisted upon. Bearing in mind the intensely conservative spirit of these people, it is not at all likely that they will be satisfied with the darker, heavier breads made from French flour, and the sales of the latter now amount to less than 200 barrels a month. Nevertheless, it must be noted that there is still a margin of profit on the French flour and further reductions can be made in the price without ensuing loss, while the bottom price for American flour seems to have been reached. I have not been able to learn what the invoice price of this French flour is, but have reason to believe it is very low.

No flour is imported here from any other countries than the United States and France.

In Martinique, where there is no discrimination against it, our flour will, of course, continue in demand.

LOUIS H. AYMÉ,

GUADELOUPE, *February 17, 1902.* *Consul.*

FERTILIZERS IN THE LEEWARD ISLANDS.*

The British Government has of late been investigating the growth of cane in the West Indies, and experiments have been conducted by experts. The result of these investigations has been published in the form of a report, extracts from which are given below.

These islands being of volcanic origin, the soil is largely composed either of what was originally volcanic ash or a sandy loam of

* In reply to inquiries from a New York correspondent, to whom advance copy has been sent.

decomposed volcanic rock, which no doubt still contains a large store of phosphate of potash.

Although there are many types or varieties of sugar cane, generally speaking they are referred to either as "rattoon" canes or "plant" canes. Rattoon canes are those which are allowed to spring up as shoots from the short stalk left after a field has been cut. With plant canes, the ground is prepared anew. The plants consist of a section or joint cut from the top of the canes. These are usually treated with a solution of lime before planting. Both kinds are often found on an estate. A field which is allowed to grow rattoons one season will be planted anew the following season. The two classes require somewhat different manuring.

I quote from the report above referred to:

As a result of experiments conducted during the season of 1899 and 1900, it was evident that during a dry season the application of (1) sulphate of ammonia and (2) nitrate of soda to plant canes gave small gains, not enough to prove remunerative. These experiments were repeated with rattoon canes on the same plots during the season of 1900 and 1901 with very satisfactory results. The season was a poor one from an agricultural point of view, yet it was demonstrated that the application of 30 pounds of nitrogen produced a substantial increase in the yield of sugar. Sulphate of ammonia has given even larger returns.

At Antigua, it was found that 30 pounds of nitrogen or 146 pounds of sulphate of ammonia to the acre of rattoon canes afforded an increase of sugar worth $8.52, while 60 pounds of nitrogen or 292 pounds of sulphate of ammonia afforded an increase of sugar worth $12.34.

With nitrate of soda, it was found that 196 pounds, equivalent to 30 pounds of nitrogen, produced an increase of sugar worth $6.84, while double the amount yielded an increase worth $11.

To sum up, it was demonstrated that nitrogen was highly beneficial for the treatment of rattoon canes, and the preference was for sulphate of ammonia as the most useful form of nitrogen. No great gain resulted from the use of very large applications.

In the plant canes, it was found that, so far as the Leeward Islands were concerned, the application of phosphates generally reduced the yield.

It is possible to grow good crops of plant canes with the use of pen manure only (including also organic manures, such as green dressing), when this can be obtained in sufficient quantity; otherwise, crops may be grown with the aid of artificial manures. These should convey to the land a fair proportion of nitrogen—say, 40 pounds (equal to about 200 pounds of sulphate of ammonia)—and 40 to 60 pounds of potash.

JOSEPH HAVEN,
Commercial Agent.

ST. CHRISTOPHER, *March 20, 1902.*

TAX ON COMMERCIAL TRAVELERS IN BRITISH GUIANA.

At a session of the colonial legislature held in this city March 12, the local tax ordinance being under consideration, a motion was made and adopted imposing a tax of $48 on all commercial travelers taking orders for goods.

A few of the elective members of the legislature, prominently associated with the mercantile interest of the colony, were chiefly responsible for the incorporation of this clause in the ordinance. An effort was made to make the tax £50 ($243), which would tend still more effectually to keep out the foreign business agent. The official members heartily supported the measure as finally adopted.

The ordinance will prove mischievous by limiting the commercial horizon of the colony, handicapping business intercourse, and checking the development of trade. It will discourage one of the most popular and successful methods available for promoting our commercial relations with the colony, by embarrassing our exporters as well as the local retail merchants.

Many of the smaller retail firms which formerly made their purchases through local jobbing houses, which have their resident purchasing agents in England, had gradually found it advantageous to deal with the commercial travelers, who kept them in touch with foreign markets and offered competitive prices, which promoted their success in business. The local jobbing concerns, which are quite independent of the commercial traveler for the reason stated, expect, under existing conditions, that the retail concerns will resume their former business relations with them.

While the ordinance applies to England as well as to the United States, it will, I think, be clear that it will practically operate to our disadvantage.

GEO. H. MOULTON,
Consul.

DEMERARA, *March 20, 1902.*

TARIFF CHANGES IN COLOMBIA.

By a recent decree, the import duties on all merchandise except alcohol and rum have been increased 50 per cent over those previously in force; in other words, the ad valorem duty has been raised from 20 per cent to 30 per cent.

The import duty on alcohol and rum has been reduced, in consideration of the facts that the disturbed condition of the Department of Panama has put a stop to the manufacture of these articles

and that they form the raw material of other industries which contribute to the wealth of the country. The duty on alcohol and rum is therefore henceforth, and until public order has been restored, as follows:

	Centavos.
For each liter of alcohol containing up to 42° of the areometer of Cartier.....	50
For each liter of alcohol of more than 42° of the same areometer.....	100
For each liter of rum up to 21° of the same areometer.....	50

I may add that the above duty is payable in silver coin, and that gold is now and has been for some months sold for silver at a premium of 150 per cent.*

OSCAR MALMROS,

COLON, *March 25, 1902.* *Consul.*

VENEZUELAN DUTIES ON PAPER.

Consul Plumacher sends from Maracaibo, March 15, 1902, translation of recent executive decrees, the first providing that white silk paper imported in sheets of the dimensions of 49 by 36 centimeters (19.29 by 14.17 inches)—used for the manufacture of copy books—shall be placed on the third class of the tariff (0.25 bolivar per kilogram, or 4.8 cents per 2.2 pounds). The other provides that the paper comprised in the third class of the tariff, "not specified," when introduced through the custom-houses and having some name or heading, printed or lithographed, even if for private use, shall be included in the fifth class of the tariff, the same as office supplies. The fifth class is liable to a duty of 1.25 bolivars per kilogram, or 24 cents per 2.2 pounds. Mr. Plumacher adds:

It should be kept in mind that sample boxes (muestras sin valor) to a gross weight of 25 kilograms (55 pounds) will always pass the custom-houses without paying duty. This ought to be of interest to manufacturers of patent medicines and drugs, who send them for distribution among physicians and druggists. Up to the present, most of the patent medicines are of French origin.

ARGENTINE-PARAGUAYAN ARBITRATION TREATY.

Under date of February 5, 1902, Minister Finch, of Montevideo, sends translation of the treaty between the Argentine Republic and Paraguay. This has been ratified by the Senate of Paraguay, but has since been subjected to an alteration in regard to the manner of selecting the third arbiter, which alteration has not yet been accepted by Paraguay. The provisions of the treaty, summarized, are:

* This would make 50 centavos equal to 20 cents in United States currency; 100 centavos=40 cents.

The contracting parties will submit to arbitration all controversies which may arise, if these do not affect the constitution of either country, or if they can not be solved by direct negotiations. No questions which have been decided can be brought up again. For each case, a tribunal of arbitration shall be formed, consisting of three judges, one named by each of the parties and the third chosen by these two. If they can not agree, the President of the Swiss Confederation shall be asked to select the third arbiter, who will be the president of the tribunal.* The same person can not act in this capacity more than once. The arbiters must not reside in the states interested. The tribunal shall select the time and place of meetings, and direct the proceedings to be followed. The decision of the majority is to be considered as a sentence; but if the third arbiter should not accept the opinion of either of the arbiters named by the contracting parties, his decision shall be accepted. The tribunal shall state the term within which the decision shall take effect, being competent to decide the questions which may arise in the execution of the same. The decision is not subject to appeal, but revision will be permitted before the same tribunal which made it, if this is requested before the term fixed for its execution has expired, if the decision has been made in virtue of a false document, or if it is the consequence of an error. Each of the parties shall pay its own expenses and half of the general expenses of the tribunal of arbitration.

The treaty is to continue for ten years; and if it is not denounced six months before the expiration of that term, it will be considered renewed for ten years more.

Minister Finch also sends translation of a protocol extending the time for the ratification of the treaty by Congressional action for twelve months longer.

CEMENT IN PARAGUAY.

There is a large consumption of Portland cement here, as most of the houses are built of brick. One house alone sells about 48,000 barrels per year. Frame houses are not liked in this country, because they afford hiding places for all manner of insects. People here build their walls exceedingly thick, on the principle that both heat and cold are thus excluded; they also cover the houses on the outside with cement.

The chief brands coming to this market are: Aguila, which comes in barrels of 120 kilograms (264 pounds) and costs $1.50 and $1.60 laid down in Buenos Ayres; Cardinal, which comes in barrels of 100 kilograms (220 pounds) and costs $1.70 gold; Leon, which comes in barrels of 100 kilograms, at $1.65 gold; Pato, in barrels of 100 kilograms, at $1.50 to $1.60. This last class does not seem to be popular in this market.

It is a great deal better to send heavy material like this to Buenos Ayres, sending shipping documents to a transshipping company and advising it by previous letter (in Spanish) of the steamer on which the shipment is made, so that the lighters may be ready.

*The alteration above referred to, instead of choosing the President of Switzerland, provides that each power shall designate a different power, and the selection of the third arbiter shall be made by these two powers.

These lighters remain in the port of Buenos Ayres perhaps six or eight days, awaiting a steamer for Asuncion. The freight on such a cargo boat is $2 less than if the goods are shipped on one of the passenger boats.

I understand that some of the New York lines have arrangements with the Mihanovich Steamboat Company to transship their cargo on a river steamboat, which is as cheap as obtaining a through bill of lading from New York.

The usual term of credit here is six months.

JOHN N. RUFFIN,
Consul.

ASUNCION, *February 20, 1902.*

COFFEE CROP OF BRAZIL.

In reply to inquiries by a resident of Louisiana (to whom an advance copy has been sent), Mr. Dawson, secretary of legation at Petropolis, writes, under date of February 5, 1902:

The crop delivered from the interior at Rio from July 1, 1901, to June 30, 1902, is estimated at 5,466,000 bags; at Santos, 10,483,000 bags. This estimate is based on the deliveries made during seven months—July to January, inclusive—and on the assumption that deliveries for the ensuing five months will bear the same proportion to the previous months as in past years.

The best authority on the general situation in Brazil estimates the world's visible supply at 10,813,700 bags on January 1, 1902. Of this, New York held 1,924,000 bags; Havre, 2,212,100 bags; Hamburg, 794,000 bags; and Rio and Santos, 1,681,400 bags.

In this connection, the following statistics may be interesting as showing the relation b en the Rio and Santos crops and the world's visible supply:

Deliveries of Rio and Santos crops.

	Bags.
During 12 months to June 30, 1900	9,007,000
July 1 to December 31, 1900	6,832,000
January 1 to June 30, 1901	3,810,000
July 1 to December 31, 1901	10,389,000
Estimated deliveries January 1 to June 30, 1902	5,578,000

World's visible supply.

June 30, 1900	5,715,000
December 31, 1900	7,457,000
June 30, 1901	6,746,000
December 31, 1901	10,817,000

As to the crop which will begin to be gathered in May and shipped in the year following next July, information is yet incomplete. Up to the middle of December, reports were extremely

unfavorable, and the opinion was that it would not be much more than 40 per cent of the current crop—that is to say, 6,500,000 bags. Rains have been abundant of late, however, and the general impression is that it will be nearly an average one and will run from 9,000,000 to 11,000,000 bags. The crop is rapidly reaching a stage where an accurate judgment can be formed by experts as to the relative percentage of an average crop likely to be produced, but the extent of new territory coming into bearing and the quantity of coffee that is being held in first hands are uncertain and render an exact estimate impossible until in the autumn.

CHANGES IN AUSTRALIAN TARIFF.

Consul-General J. P. Bray transmits from Melbourne, March 8, 1902, a list of the recent amendments made by the House of Representatives to Australian customs duties,* as follows:

Article.	Previous proposal.	New duty.
Division IX.—Drugs and chemicals.		
Insecticides	15 per cent	Free.
Medicines, viz, patent and proprietary medicines and other medicinal compounds; nonspirituous medicinal extracts, essences, juices, infusions, solutions, and sirups; pills, pilules, tabloids, tablets, capsules, cachets, suppositories, plasters, poultices, salves, ointments, liniments, nonspirituous, pastes, medicated confectionery, medicinal waters and oils, n. e. i.; and medicines for animals.	25 per cent ad valorem	15 per cent ad valorem.
Division X.—Wood, wicker, and cane.		
Timber, viz:		
Timber, undressed, being Oregon, in sizes of 12 inches by 6 inches (or its equivalent), and over, per 100 superficial feet.	1s. (24 cents)	6d. (12 cents).
Timber, undressed, n. e. i., of sizes less than 7 inches by 2½ inches (or its equivalent), per 100 superficial feet.	2s. 6d. (60 cents)	1s. 6d. (36 cents).
Pickets, undressed.....per 100	2s. (48 cents)	1s. (24 cents).
Division XII.—Leather and rubber.		
Boots and shoes, except partly or wholly of lasting or stuff, English sizes to be the standard, viz:		
Men's sizes, above 5...per dozen pair	20s. ($4.86) and 15 per cent ad valorem.	30 per cent.
Youths' sizes, above 1.....do	15s. ($3.65) and 15 per cent ad valorem.	Do.

*Advance Sheets No. 1201; Consular Reports No. 256.

Article.	Previous proposal.	New duty.
Division XII.—Leather and rubber—Continued.		
Boots and shoes, etc.—Continued.		
Boys', 7-1.....per dozen pair...	10s. ($2.43) and 15 per cent ad valorem.	30 per cent.
Women's sizes, above 2.....do.....	15s. ($3.65) and 15 per cent ad valorem.	Do.
Girls' sizes, above 10.....do.....	12s. ($2.92) and 15 per cent ad valorem.	Do.
Girls', 7-10.....do.....	9s. ($2.19) and 15 per cent ad valorem.	Do.
Slippers, leather.....do.....	5s. ($1.21) and 15 per cent ad valorem.	Do.
Cloth made waterproof with india rubber.	20 per cent ad valorem.....	15 per cent.
Canvas or tyre fabric made waterproof with india rubber, outer rubbers and inner tubes not valved.	.....	10 per cent.
Division XIII.—Paper and stationery.		
Paper, viz:		
Printing (uncoated), in sizes not less than 20 by 25 inches.	10 per cent.....	Free.
Strawboard.....per cwt...	2s. (48 cents).....	1s. (24 cents).

FREE LIST IN AUSTRALIA.

Consul-General Bray sends from Melbourne, February 14, 1902, a list of the minor articles to be used in the manufacture of goods in Australia which are admitted free of duty, as follows:

Manufacture of bellows.

Hoops.
Pipes.

Manufacture of blinds.

Actions, patent.
Eyes.
Holdfasts.
Knobs, screw.
Pulleys.

Manufacture of boots and shoes.

Beadings, up to 1½ inches in width.
Boxes, spur.
Caps, toe, metal.
Circlets.
Clasps, iron, for clogs and pattens.
Fasteners, button.
Heels, wooden, with or without leather covering.
Heels for clogs and pattens.
Nails, heel.
Plates, heel.
Plates, toe.
Plugs.

Manufacture of boots and shoes—Cont'd.

Seamings, up to 1½ inches in width.
Shanks and shanking.
Strappings, back, up to 1½ inches in width.
Tips, heel.
Top banding.
Welts and facings, up to half an inch in width.

Manufacture of fishing rods.

Butt caps.
Counters.
Ends.
Ferrules.
Hitches or catches.
Rings.

Manufacture of furniture.

Caps or ferrules for bamboo furniture.
Nails, fancy.

Manufacture of harness, saddles, and whips.

Foundations, iron, for winkers.

Manufacture of hats and caps.

Braids.
Galloons (hat), up to 1½ inches in width, plain colors.
Leathers, real or imitation.
Peaks (cap), except leather or embroidered.
Tassels.
Ventilators.

Manufacture of metals.

Agricultural, horticultural, and viticultural implements.
Check bits.
Mouthpieces for chaff cutters.
Fingers.
Sections for reapers.

Manufacture of parasols, sunshades, and umbrellas.

Caps.
Mounts, except gold or silver.
Notches.
Swedges.
Tassels.
Tips.

Manufacture of vehicles.

Bar mountings.
Back lights.
Buckles and buckle loops.
Barrels, curtain.
Beading and bead finishers.
Bow sockets.
Buttons.
Clips.
Collars.
Couplings, shaft and pole.
Ends.
Eyes.

Manufacture of vehicles—Continued.

Fasteners, apron, curtain, seat, and patch.
Irons, slat.
Ivories.
Joints, stump.
Knobs.
Plates, felly.
Props, and nuts for same.
Shackles.
Slides, seat.
Steps and step treads.
Stops, shaft.
Tassels.
Tips.
Whip sockets.

Miscellaneous manufactures.

Bottle stoppers:
- China top and wire fasteners for attaching to bottles.
- Screw, made of lignum-vitæ.
- Internal, viz, marbles, lignum-vitæ, vulcanite, or ebonite.

Caps for cartridges.
Eyelets and rings, sail and sacking for tents and tarpaulins, etc.
Gas tips:
- Lava.
- Steatite for gas fittings.

Screws:
- For handles.
- For hinges, without nuts, for coal scuttles.
- Lock and stove, up to 4 inches.

Stars and knobs, with screws.
Springs for leggings.
Knobs and feet for fenders.

IRON ORE IN NEW ZEALAND.

No iron ore is worked in this colony, all attempts at forming companies having proved a failure, principally because freights on iron are so low from England to New Zealand that the English production would compete severely with colonial iron manufactures. Besides, pig iron is admitted duty free, as well as black iron sheets, which are galvanized and corrugated here, while the finished article is charged £2 ($9.72) per ton by way of protecting local manufactures. Hematite-iron ore occurs in several places in this colony. At Para Para, in the provincial district of Nelson, Government reports state that 650,000,000 tons of this ore occurs on a hillside, with

crystal limestone within a mile of it and coal in close proximity, and Para Para is situated in Golden Bay, in which all the navies of the world might ride at anchor.

Black titaniferous sand is also found in abundance on the west coast, principally near New Plymouth, of the Taranaki Province. Attempts were made some years ago to work this, but they ended in failure. It is said that a company is being floated in London to work these black sands, but nothing definite is known.

Several deposits of manganese ore occur in Whangarei, north of Auckland, at Waiheke Island, close to this city, and also at Wairoa South, not far from Waiheke. Shipments of this material have been made from time to time, but the quantity sent away is small, only amounting to a few hundred tons a year. One huge deposit at Wairoa South has been slightly explored, showing a lode of rich manganese ore from 16 to 17 feet in width.

FRANK DILLINGHAM,

AUCKLAND, *February 12, 1902.* *Consul.*

GOLD DISCOVERIES IN PORTUGUESE EAST AFRICA.

Consul W. S. Hollis reports from Lourenço Marquez, February 19, 1902:

I inclose clipping from the local paper in relation to the discovery of gold reefs in the Gaza district of the Province of Mozambique, which items I have verified by careful inquiries.

I understand that the Portuguese Government intends to build a line of railway, starting from a point on the Delagoa Bay road and running into the heart of the new gold fields.

As the gold is all in reefs, it will be necessary to employ the most modern machinery in order to extract it from the rock, and this will create a market for the sale of American mining apparatus. For the same reason, there will be no opening for the individual miner, with his pick and shovel.

The Portuguese authorities are enthusiastic over these gold discoveries and intend to treat all bona fide investors and mining men in the most liberal manner. Further particulars will be reported as they develop.

[Extract from O Futuro, Lourenço Marquez.]

Some six months ago, striking reports reached Delagoa Bay of a wonderful discovery of gold somewhere in Gazaland. Now, we have further information on the point. The gold is there in large quantities. There is, first of all, a quartz reef

showing "visible," very rich. We have seen good specimens of the ore, and it is much the same as that of the Sheba, at Barberton.

The extraordinary thing is that in the same region conglomerate similar to that of the Rand has been struck. A sample was sent to Johannesburg and was subjected to the fine test. It gave excellent results. This conglomerate extends over a large area. A local syndicate has been formed to prospect and develop the reefs.

MEAT TRADE OF LOURENÇO MARQUEZ.

The meat trade of Lourenço Marquez may be divided into two classes—fresh meat and frozen meat. The fresh meat generally consists of trek oxen, Madagascar and Zanzibar cattle, Transvaal sheep and goat, and an occasional Delagoa Bay pig. The trek oxen are old, worn-out animals that have traveled many weary miles over the rough South African roads. When they have become unfit for draft purposes, they are slaughtered. Madagascar and Zanzibar oxen are small and lean, and their flesh is as tough and tasteless as that of the trek oxen.

The local butchers send from one to half a dozen animals to the slaughterhouse every night. Early in the morning the animals are killed by being stabbed in the back of the neck, where the spinal column joins the skull; the hearts, livers, lungs, and a few other organs are inspected by a municipal physician detailed for that purpose. After inspection, the carcasses are immediately cut up, and by 5 a. m. the various parts are hanging in the local butcher shops ready for sale. By noonday, the butchers are sold out, their shops are closed, and in less than twenty-four hours from the time the animal was slaughtered the entire carcass is consumed.

None of the local butchers use ice, as it is very expensive, costing from 5 to 6 cents a pound.

Mutton and pork are prepared very much in the same manner as beef.

In cutting up meat for sale, local butchers endeavor to include as much bone as possible, so that every pound of the dressed carcass may be sold. Sometimes there is more bone than meat in an ordinary piece of sirloin.

The frozen meat comes from Australia, and is kept in a small cold-storage warehouse. The retail trade in frozen meat is conducted in a manner similar to that in fresh meat—that is, there is no waste bone or fat.

None of the butchers or meat sellers deliver meat.

The equipment of a Lourenço Marquez butcher shop would amaze an American butcher. Everything is crude and antiquated.

There are no refrigerators, and marble slabs and plate-glass windows are almost unknown. Instead of clean paper, old newspapers are used for wrapping purposes. At present, the average price of fresh beef is 30 cents a pound, while pork and mutton are quoted at about 60 cents.

No dressed poultry is sold here; the housekeeper must buy live fowls and have them prepared at home.

W. STANLEY HOLLIS,

LOURENÇO MARQUEZ, *January 19, 1902.* *Consul.*

AMERICAN VEHICLES DESIRED IN MADAGASCAR.

In continuation of my report of December 4, 1901, on the subject of "Roads and transport systems in Madagascar,"* I would say that the French Government has awarded the transport service between the coast and Tananarivo to Mr. Edouard Giquel, a merchant of long standing in this country.

Mr. Giquel, who has studied the different patterns of handcarts and "pousse-pousse" used in the last two years, has come to the conclusion that the strongest, lightest, and most durable vehicle of the kind can be produced in the United States; and, consequently, he is desirous of entering into correspondence with our wagon and carriage manufacturers in order to obtain something of purely American type.

I give below a sketch of what is called the pousse-pousse, exported from France by Messrs. Guldener, of Marseilles. The weight and dimensions of the pattern which has displayed the most favorable characteristics are:

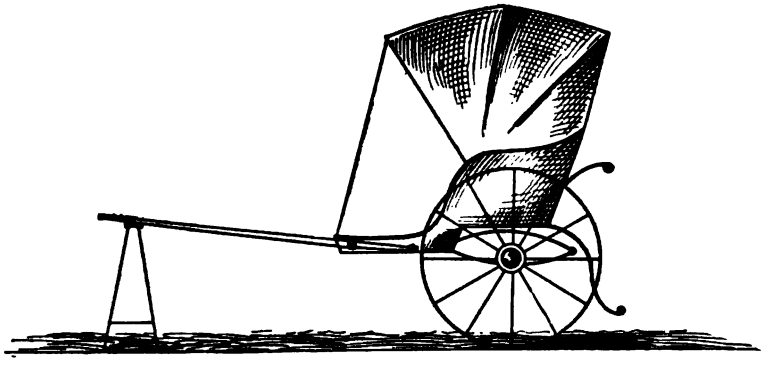
Weight of carriage, without wheels	pounds...	92
Diameter of axletree	inch....	1
Radius of wheels	do.....	18
Weight of wheels	pounds...	44

It is creditable to our manufacturers that the first wheeled vehicles to carry goods upcountry here were American, and that these wagons have stood the test of wear better than any others and have given entire satisfaction to the owners. This ought to be an incentive to compete with the passenger pousse-pousse and other vehicles destined to do away with transport by men's shoulders.

In order to make clear to our manufacturers what is wanted, I will briefly review the points to be kept in mind. The road to be worked over from the coast to the capital is 150 miles long; its final elevation is 4,000 feet above sea level, but a vehicle has to descend

*ADVANCE SHEETS No. 1276 (February 26, 1902).

a great many times before reaching the capital, owing to the mountainous nature of the country. So far, the French have not produced an article that will stand the strain for any length of time; the fact that France possesses beautiful roads is perhaps the reason her manufacturers do not readily lend themselves to the construction of a vehicle that has to fulfill new conditions. Questions under discussion are whether rubber tires should be employed, and whether the wheels might not be enlarged; but the chief difficulty is to devise means by which the center of gravity of the body of the cart, when loaded or occupied by a person, can be kept near to the axletree.



POUSSE-POUSSE.

Unless this can be maintained at an almost constant quantity, the ascending and descending creates a vertical leverage, to counteract which enormously diminishes the traction force and impedes speed; consequently, the pousse-pousse has thus far obtained little advance over a palanquin in the matter of speed.

Our manufacturers desirous of taking up the matter should write in English or French to Mr. Edouard Giquel, Tamatave, who will explain all further details.

WILLIAM H. HUNT,

TAMATAVE, *January 13, 1902.* *Consul.*

GERMAN STEAMSHIP SERVICE IN POLYNESIA.

The Jaluit Company, of Hamburg, has made a new contract with the German Government for the maintenance of mail steamship connection between Sydney, the Marshall Islands, the Carolines, Hongkong, and the Bismarck Archipelago. The Jaluit Company binds itself to establish a tri-yearly mail steamship connection from Sydney to Hongkong via Jaluit, Kusaie, Ponape, Ruck, and Yap. The return trip will be made via Yap, Herbertshöhe, Matupi (if necessary), Ruck, Ponape, Kusaie, and Jaluit. For this purpose, the company is obliged to furnish a steamer of 500 to 600 gross register

tons, with accommodations for at least 10 cabin passengers and for 25 coolies, as well as with the requirements for the transportation of deck passengers. The speed of the vessel must be 8 to 9 miles per hour, and she is to fly the German mail flag. The receipts for freight and passage go to the company.

HUGH PITCAIRN,
Consul.

HAMBURG, *March 5, 1902.*

RICE CROP OF INDIA AND BURMA.

Bengal is the rice field of India, but Burma is the granary. The former produces more than five times as much rice as the latter, yet Burma exports two and one-half times more than does Bengal. During the current year of 1901–2, the area of rice in India and Burma was in round numbers 50,000,000 acres and produced 20,000,000 tons of cleaned rice, averaging about 900 pounds to the acre.

To the statistical department of the government of India I am indebted for the following particulars and information in regard to the rice crop of India and Burma for the year 1901–2:

In Burma, the area under rice in the fourteen principal rice-growing districts is estimated at 6,498,120 acres, which is about 3 per cent more than the area reported last year. The yield is estimated at about 3,010,000 tons, which is a little larger than that of last year and greatly in excess of the average. The surplus available for export is stated at 2,260,000 tons of cargo rice—equivalent to 1,915,000 tons of cleaned rice. It is estimated that, out of this quantity available for export, about 80,000 tons may be required for consumption in Upper Burma.

In Madras it is estimated that, on the whole, on an area about equal to the average, the yield will be rather more than the average of recent years.

The figures below state the quantity of rice, husked and unhusked, exported to foreign countries in recent years:

Year.	Burma.	Bengal.	Madras, Bombay, and Sind.	Total.
	Cwts.	*Cwts.*	*Cwts.*	*Cwts.*
1896–97	19,378,594	5,066,041	3,829,702	28,274,337
1897–98	18,170,512	4,970,536	3,605,613	26,746,661
1898–99	25,968,896	8,736,751	3,236,639	37,942,286
1899–1900	21,682,304	7,921,226	2,667,863	32,271,393
1900–1901	21,426,910	8,153,017	1,762,861	31,342,788
1901–2 (10 months)	15,607,544	4,538,333	2,858,525	23,004,402

Since 1896, with the exception of the one year 1898–99, the exports of rice have been comparatively restricted, owing to the high level of prices following bad seasons in India. The conditions of the consuming markets in India are well illustrated by the subjoined figures of shipments of rice from Burma to Indian ports, Burma being an unfailing granary from which supplies were drawn for denuded stores in India. It will be noted that large shipments from Burma to India coincided with diminished exports from India to foreign countries.

Rice shipments from Burma to Indian ports.

	Cwts.
1896–97	6, 600, 354
1897–98	12, 242, 730
1898–99	5, 920, 951
1899–1900	13, 542, 371
1900–1901	21, 599, 851
1901–2 (9 months)	9, 049, 578

Estimated area of the rice crop of recent years.

Province.	1901–2.	1900–1901.	Average of preceding 5 years.
	Acres.	*Acres.*	*Acres.*
Madras	6,716,700	6,591,600	6,804,200
Bengal:			
Summer crop	478,700	475,900	529,100
Autumn crop	7,160,600	7,063,600	7,518,700
Winter crop	28,727,200	28,474,400	30,833,700
Total	36,336,500	36,013,900	38,881,500
Burma	6,490,120	6,309,033	5,594,752
Grand total	49,581,420	48,914,533	51,280,452

Yield of cleaned rice.

Province.	Estimated yield for 1901–2.	Estimated yield for 1900–1901.	Average of preceding 5 years.
	Cwts.	*Cwts.*	*Cwts.*
Madras	50,587,700	49,023,100	48,210,500
Bengal:			
Summer crop	3,094,900	3,286,600	3,112,400
Autumn crop	45,769,400	44,630,400	46,052,900
Winter crop	237,439,100	263,591,600	283,752,500
Total	286,303,400	311,508,600	332,917,800
Burma	60,209,000	52,975,000	44,581,000
Grand total	397,100,100	413,506,700	425,709,300

WM. THOS. FEE,
Consul.

BOMBAY, *March 4, 1902.*

PROPOSED AMERICAN DEPARTMENT STORE AT BOMBAY.

Now that the American manufacturer is trying to gain a fair share of trade in the world's markets, I would suggest that he give more attention to India. On this peninsula, which is about half the size of the United States, reside 300,000,000 people, or about one-fifth of all the inhabitants of the earth.

The exports of India exceed its imports. A careful examination of its foreign trade will show that, with few exceptions, India sells raw material and buys finished products, and therefore is substantially a consuming nation. During the fiscal year 1900–1901, the foreign trade of India amounted to over 20,000 lakhs of rupees, or about $692,000,000. Of this, $383,000,000 represented exports and $309,000,000 imports. The lion's share, or about two-fifths of the entire trade, went to the United Kingdom. The United States was the third largest purchaser of India's exports, China occupying second place. As an exporter to India, the United States ranks near the end of the list. It is some consolation to know, however, that if all the articles imported from the United States into India—many of which lose their identity in being transshipped in Europe—were traceable, our sales would make a much better showing.

Great Britain is not increasing its trade with India, yet when we consider the number of years that it has enjoyed a substantial monopoly in this respect, some idea of the important part India has taken in contributing to the wealth of the British Empire can be formed.

The continent of Asia and its islands have a population of perhaps 800,000,000 people and a trade worth probably $2,000,000,000 a year. Of this trade, the United States does not receive a fair share—less, indeed, than some nations which, to reach it, have two seas to our one to cross.

Few, if any, cities in the Orient offer better facilities for exploiting American goods than Bombay. It possesses a magnificent harbor, extensive systems of railways radiate from it, and its steamship and freight lines run to all parts of the globe. It is a great transshipping point by sea and is the national gateway to India. Bombay ranks third in the British Empire in the value of its annual export and import trade, London and Liverpool being first and second, respectively. Before the plague reduced its population, next to London it was the largest city in the Empire. During the past year, its imports were valued at $120,000,000 and its exports at

$112,000,000, making a total foreign trade of $232,000,000, or nearly half of that of all India.

Commerce with America is increasing. An exceedingly friendly feeling towards the United States exists among the people of India, and all things American are popular. A number of our business concerns have established agencies and branch houses here, and others are sending trained representatives into the field—a system I have strongly recommended to our exporters. Many letters of inquiry, catalogues, advertising sheets, and price lists come to this consulate. While this way of obtaining business is not overproductive, yet it shows that our people are beginning to realize the opportunities for trade in India.

The Indian native is not prevented by patriotism from buying where he can secure the best and cheapest goods—especially the cheapest. He naturally desires to examine the article he buys, and if "spot" cash is required, he in turn demands "spot" delivery.

I wish to impress upon the American manufacturer or exporter the desirability of placing his wares on actual sale in this market. Sample rooms, catalogues, price lists, employment of native agents, etc., have been, so far as my observation goes, somewhat barren of substantial results. The way to sell goods is to simply sell them, and the less complication the better. It would be hard to improve upon the method used by our large concerns. The merchant shows his goods, the buyer makes his selection, pays the price, and takes the article. That is all. What can be more simple? This method of buying and selling has succeeded well at home; why not abroad?

When credit sales, catalogues and samples, foreign museums, agencies, and other schemes are introduced, complications arise, all of which tend to increase the price to the consumer, without any additional advantage to the seller. I therefore recommend to the enterprising American exporter not wishing to assume the expense of sole representation in this market, that he associate himself with some noncompeting firm in a joint representation of their products.

In accordance with this idea is an American department store, composed of ten or twelve departments of noncompeting mercantile lines, each controlled by a submanager, sent out from the home house, and all under the supervision of a man of large local and general experience. Such a concern should be a stock company, with the stock held equally by the several houses interested and paid for in the goods represented, less a small percentage in cash, the latter to be used to defray the expenses of establishing the business. The clerical force and salesmen could be natives of the country, but other details should be purely on the American plan. The sales, both wholesale and retail, should be made on a cash

basis, or its equivalent, and sufficient goods should be carried in stock to permit immediate delivery. In case of heavy orders and where time is not an important consideration, the present indent system could be used. The stock of the different lines could be increased or decreased, or new lines added, or other necessary changes made, as the business demanded or experience suggested. The various noncompeting lines that would probably prove successful are:

(1) Boots and shoes.
(2) Carriages, bicycles, and automobiles.
(3) Hardware, shelf goods, edged tools, stoves, cooking utensils, etc.
(4) Iron and steel, structural and corrugated iron, wire and safes.
(5) Leather, harness, and trunks.
(6) Jewelry, clocks, and watches.
(7) Dry goods, piece goods, and sewing machines.
(8) Furniture, including office and school fixtures.
(9) Machinery, pumps, engines, agricultural tools suitable for India, arms and ammunition.
(10) Electric machinery and electric supplies.
(11) Groceries and provisions, canned goods, preserves, cured meats, fish and dried fruits.
(12) Stationery, paper, certain lines of books, maps, typewriters, and office supplies.

Local firms dealing in these lines of American goods should be consulted and an understanding reached, so that conflict of business interests would be avoided.

Our manufacturers and exporters will at once see the many advantages of an American department store in this city. The unity of the various houses represented would give it strength and capital; the presence of thoroughly trained and reliable American representative agents, each a specialist in the line of which he is manager, studying the wants of the people and keeping their houses in touch with the market, are strong arguments in its favor. The goods, being on hand, could be sold on their merits and at once delivered for cash, a feature that speaks for itself.

There is an American citizen living here who has been in business in Bombay for some years as the principal of a merchant and commission house. He has so much faith in this scheme for the establishment of an American department store that he is not only desirous of giving his attention to it, but is willing to invest money in the concern.

He informs me that he is writing up the plan and will place it before American exporters.

WM. THOS. FEE,
Consul

BOMBAY, *February 12, 1902.*

INQUIRY FOR AMERICAN AGRICULTURAL IMPLEMENTS IN SIAM.

I have received the following letter from J. S. Sanitwongse, acting director-general of the Siam Canal, Land and Irrigation Company, which may prove of interest. In this connection, I would refer to my report on canals and irrigation in Siam, published in ADVANCE SHEETS No. 636 (CONSULAR REPORTS No. 234).

BANGKOK, *January 25, 1902.*

SIR: You are already aware that the irrigation canals, which we have excavated and are still excavating, have opened up a large area of land for the cultivation of rice, which a short time ago was a wild grass jungle.

Since the establishment of proper locks and sluices, this land has yielded excellent crops every year, and at the present time a large tract has been brought under cultivation. In many instances, the people have taken up more land than they can work by themselves, and for the necessary assistance have been compelled to resort to Laos labor. The demand for Laos labor is now greater than the supply, and wages are becoming exorbitant. As a result, the owners of the land will have to reduce the area under cultivation, or pay such prices for labor that only a very small margin of profit will be left. Besides, the Laos leave for their homes in the north in February, and if the crop is a large one, as it is this year, much of it is left on the ground.

In addition to the above difficulties, there is another very serious one in regard to the buffalo, which is necessary for the cultivation of rice. Owing to the ravages of disease during the last two or three years, the price for these animals has gone up 100 per cent. With the enhanced prices of labor and buffaloes, the margin of profit to the owners is now very small. In view of these circumstances, I believe there will be a very good opening for some enterprising firm of your country to introduce machines to take the places of the Laos laborers and of the buffaloes. But before introducing any machines, it would be best to send out some competent person to study thoroughly the manner in which rice is cultivated here, the condition of the soil and water, etc. Such a person would then know exactly what machines will be able to do the work required.

I have consulted with many owners of land, and they have all agreed that they are willing to divide half their profits with anyone who will plow, reap, and thrash the rice for them, The owners, on their part, will do the sowing and raking, and will bring in the crop and do other necessary work.

If it can be shown that rice can be cultivated successfully by machinery, there will be a demand for such machines, not only in this district, but in other rice areas of Siam, which will mean a considerable market for these manufactures of your country.

I trust that you will deem the above remarks worthy of consideration.

Yours faithfully,

J. S. SANITWONGSE,
Acting Director-General.

In view of this letter and as showing something of the possibilities of the people of whom it speaks, the following may also prove of value.

CHARACTERISTICS OF THE LABORING MAN IN SIAM.

The indolence of the coolie as he is found in the city is a most discouraging element in any plan that looks toward his development, but a broader view reveals the fact that this characteristic is largely due to his environment; for, separated from the influences of the city and in his more natural sphere—the fields, the forests, and the streams—the average Siamese laborer is more industrious than the tropical climate would lead one to expect.

In general, the tenant farmer of Siam lives and dies a laborer, and makes no endeavor to become a landowner. Yet careful inquiries show that the number of tenants who have become proprietors varies with the incentive offered to improve their condition.

The percentage of natives who have acquired real property in different parts of Siam ranges all the way from zero to 10 per cent, while from the district about Klong Rangsit comes the encouraging record of over 50 per cent and from some sections as high as 65 per cent. Here in this great plain, where the jungle has been converted by irrigation into productive fields, inducements have been held out to the poor man, through a system of low prices, long time, and easy payments, to become the owner of his farm; and he has responded in a most encouraging manner. Overcoming the temptation of the gambling houses, and the trend toward dependence long accepted by his class, he has risen to this incentive in a surprising manner, and has, in ten years, converted the lair of the wild beast into a thrifty community of over 80,000 souls. And the continued demand made by him for better things is to-day far in excess of the supply.

Although the data is not of as general a nature as could be desired, so far as it is at hand, it would seem to argue much for the proposition that the poor laborer of Siam has within him that which will respond to a call to come up higher.

HAMILTON KING,
Consul-General.

BANGKOK, *January 28, 1902.*

AMERICAN GINSENG IN CHINA.

The sale of ginseng root grown in America, about which there have been several inquiries at this consulate by interested parties in the United States, is very considerable in Hongkong, and the demand is so great that much more could be disposed of advantageously. The ginseng root is as indispensable to the well-to-do Chinese as is their rice. They attribute all sorts of medicinal virtues to the root, especially using it as a stimulant. The growth of the ginseng trade has been marked in recent years, and higher prices are now paid

by dealers than ever before, especially during the last three years. American growers of ginseng may confidently expect a steadily increasing market in Hongkong, although it is largely only a distributing center. The root is prepared in this city. The skin is cleaned and smoothed by a special process, sorted out in equal sizes, put up in neat boxes of various capacities, according to quality, and reexported to all the consuming districts in China. The bulk of the shipments goes to the northern ports, such as Shanghai, Hankau, Tientsin, and Chefoo, although a fair proportion finds its way to Canton and the coast ports—Amoy, Swatow, and Fuchau; also to Formosa, and other markets where there are Chinese.

The average value of American ginseng annually received at Hongkong is from $1,700,000 to $1,800,000 Mexican ($763,300 to $808,200 gold).* The value of the Chinese ginseng annually imported is estimated at about $100,000 Mexican ($44,900). The quantity is small, but its value is computed at twenty to forty times its weight in silver, according to quality. The importation of Korean ginseng root is valued at about $800,000 ($359,200) a year.

The prices of ginseng vary according to quality. The wild, dried American root, as imported at Hongkong, may be classified into three grades, generally known to the trade as "fair," "good," and "extra" or "selected." The values per picul (133⅓ pounds) of these grades, as based on sales made during the last three years, were:

Grade.	Value.	
	Mexican.	Gold.
Fair	$1,420	$637.58
Good	1,560	700.34
Selected	1,930	866.57

The present values of these grades bring the price in American currency, respectively, per pound to $4.05, $5.25, and $6.18, after deducting charges, trade discount, selling and guarantee commissions. This latter estimate is furnished by an experienced and reliable local dealer.

In addition to the grades mentioned above, others are imported, and among the best is some picked root worth $4,460 to $4,500 Mexican ($2,002.54 to $2,020.50) per picul (133⅓ pounds). Split root (cut lengthwise in two pieces) may be quoted at $1,500 Mexican ($673.50) per picul. Siftings (chips and dust) are also salable at $120 to $130 Mexican ($53.88 to $58.37) per picul. Very little cultivated

*On January 1, 1902, the Mexican dollar was valued by the United States Mint at 44.9 cents.

American root has so far been imported into Hongkong. The value of a few small shipments averaged $3,200 Mexican ($1,426.80) per picul. The cultivated root was much liked by the native buyers, and its cultivation ought to be encouraged in the United States.

The Korean ginseng root brings higher prices than that from the United States. Korean root in the Hongkong market is quoted as follows, per picul (133⅓ pounds):

Description.	Value.	
	Mexican.	Gold.
20 roots to the pound	$6,500	$2,918.50
30 roots to the pound	5,500	2,469.50
40 roots to the pound	4,500	2,020.50

American ginseng growers should be careful to conform to the requirements of the Chinese markets. The principal points are cleanliness, good color (bright yellow), and freedom from dust and chips. It is desirable that the root be sorted before it is shipped, so that the better qualities may be sold separately. However, even unassorted ginseng root of any quality is salable according to its merit. Ginseng may be shipped in any quantity, and should be packed in strong wooden casks or cases of a capacity of from 100 to 200 pounds. Old whisky casks might be used, but they should be quite dry before the root is packed. If the root is packed in a wet condition, it becomes moldy and deteriorates. The clarified root is liked by purchasers here, and its value is, as a rule, higher than that of the crude root. There is no particular process of clarification in Hongkong, but the Korean root is clarified with honey.

American ginseng exporters desirous of making shipments to Hongkong will find it to their advantage to communicate with F. J. V. Jorge, 24 Bank Buildings, Hongkong. Mr. Jorge has handled American ginseng for over twenty years and is perhaps the most experienced Hongkong merchant in this line. He has recently established an independent commission business, and is in a position to act as agent for American firms. I mention his name in order that those interested in the ginseng trade may, if they so desire, enter into business relations with someone in Hongkong. Mr. Jorge can doubtless furnish satisfactory references through the banks, and his familiarity with the ginseng trade recommends him to American exporters of this article.

W. A. RUBLEE,
Consul-General.

HONGKONG, *January 28, 1902.*

MINING IN CHINA.

The only mines in China that are worked on modern methods are the coal mines at Tongshan and Lingsi, belonging to the Chinese Engineering and Mining Company. About two-thirds of the work is done by contract, the company paying the contractors so much a ton. The contractor employs the miners by the day, and pays them from 8 to 12 cents gold for eight hours' work. Besides their wages, the miners obtain a certain part of the net profits of the contractor. Children below 16 are not employed unless they are unusually strong and well developed, in which case they are taken as apprentices and are paid 8 cents a day.

In addition to the contract work, the Chinese Engineering and Mining Company employs a large staff of miners, coolies, masons, carpenters, overseers, and deputies, besides about 100 boys, who look after the ventilating doors. The number of hours of work, the rate of remuneration, etc., may be gathered by the following letter from the superintendent, dated Tongshan, January 15, 1902:

> In reply to your inquiries in re labor and wages at this colliery, I append the following:
>
> In the mines, about 1,000 per diem men are engaged in three shifts of eight hours each. Two thousand men are employed by the contractors in mining coal and doing stonework. The contract rates for mining are 25 cents (12½ cents gold) a ton for dust coal and 60 cents (30 cents gold) for lump coal.
>
> A day's work in the mine is divided into three shifts. Coal is mined during two shifts, from 6 a. m. to 10 p. m. The per diem men make from $5 to $12 ($2.50 to $6 gold) per month; skilled masons and carpenters receive $12.
>
> About 100 boys are employed in tending thirty-four ventilating doors. Their pay is from $4.50 to $5 ($2.25 to $2.50 gold) per month. The contractors also employ some boys to do light work. The proportion of boys to men is about 10 per cent. The contractors feed the men, who also receive a certain percentage of the contractors' net proceeds. Chinese deputies in the mines receive from $12 to $50 ($6 to $25 gold) per month.

In the mines of the provinces of Shansi, Shantung, Feng-tien, Hunan, Szechuen, Yunnan, and Kyao-chau the primitive Chinese method of mining is employed, and generally the miners are paid on shares. The usual rate is about one-third of the product to the miners and the remaining two-thirds to the owners of the mines.

An entirely different system of paying the miners was adopted by the Mo-ho Gold Mining Company, whose extensive mining rights were situated between Mongolia and Asiatic Russia, embracing hundreds of square miles of rich alluvial and placer deposits. For the successful exploiting of this vast mineral wealth, it was necessary to overcome the tremendous obstacles arising from distance, severity

of climate, and total lack of labor. To settle the latter question, it was resolved by the company to inaugurate a régime which would induce the laboring classes of Shantung and Chihli to try their fortunes in the Mo-ho Eldorado. The company offered a complete outfit to every able-bodied man, besides advancing a substantial sum for traveling and other expenses incidental to the journey from Tientsin or Chefoo to Mo-ho. Upon arrival, each miner was assigned a large area for his exclusive exploitation. Stations were established at different points throughout the whole region, guarded and protected by the military police furnished by the Chinese Government. Ostensibly, the miner enjoyed the entire product of his labor, and the company exercised no control over his mining operations, provided he kept within his allotted area. It was stipulated, however, that the miner should sell all his dust to the company, at a price fixed by the latter, and obtain all supplies from the company's stores. By this arrangement, the company was able to recoup the original outlay, which was very heavy, and the miner was given an incentive to work. Many of the miners, after the first two years, became independently rich, while, on various occasions, the company declared an annual dividend of 150 per cent.

Up to the Boxer uprising of 1900, the Mo-ho Gold Mining Company was the most profitable mining enterprise in China. Since the Russians have acquired control of this territory, all mining operations have ceased.

JAMES W. RAGSDALE,

TIENTSIN, *February 19, 1902.* *Consul.*

The following additional information has been received from Consul H. B. Miller, of Niuchwang, dated March 7, 1902:

A reliable mining engineer has just returned to this port from a two months' journey into the country on the head waters of the Yalu River, where he went to inspect several gold-mining properties, as the representative of an American syndicate.

His route was from here to Moukden by train, and thence 200 miles east by cart and chair. The natives informed him that only one white man had ever before visited that section.

He reports the country extremely rich in various agricultural products, which find their way to market down the Yalu River to its mouth and thence by native junk to various parts of China.

Timber is one of the most important resources. He saw many logs 4 feet in diameter, from 40 to 80 feet long, and of very fine quality, floating down the Yalu; they are then loaded on junks for various ports in China, large numbers going to Tientsin.

COAL.

Quantities of coal are mined and used by the natives, and fine anthracite and bituminous can be found in abundance. Coke of excellent quality is one of the important exports from the Yalu River.

The anthracite coal is hauled by mule carts for 50 miles and sold for $2 Mexican (about $1 gold) per long ton. All of southern Manchuria seems to be remarkably well supplied with coal. I inclose a clipping from the North China Herald concerning coal mining at Chinwangtao, on the Liaotung Gulf.

GOLD.

Gold placers have been worked on the Yalu and its tributaries for ages, and many placer claims are still producing well, although operated in the crudest way. Sluice boxes are only 6 feet long and are without riffles or any arrangements for saving the fine gold; only the coarse is collected.

There are many evidences of quartz prospects, and it is believed that this section will soon be one of the great mining districts. Ledges worked by the natives indicate considerable value; but as they know absolutely nothing of how to work quartz mines, and have no tools—not even a hand drill—very little can yet be determined.

The expense of reaching the country and the introduction of mining machinery would not be great. The cost of labor and fuel would be as cheap as anywhere in the world.

The usual cost of living is only $2 Mexican (about $1 gold) per month.

THE CHINESE ENGINEERING AND MINING COMPANY, LIMITED.

[From the North China Herald.]

The Chinese Engineering and Mining Company, Limited, is the largest foreign company actually working in China. It is a British company, though its capital is internationally owned.

The former Chinese company, which was taken over by the Chinese Engineering and Mining Company, Limited, was unable to pay any dividend for 1900, and the mines were in a truly lamentable condition when they passed into the hands of the new company. The native employees were at first ill-disposed, so that on the 1st of March last year not more than 200 tons of coal a day were got out of the mines.

On the 1st of October last, the new European staff set vigorously to work, so that the monthly output rose in October and November to 45,000 tons, the average cost falling simultaneously to $2.35 (about $1.17 gold) a ton. The increase in output has continued month by month. In December it was 50,000 tons and in January 54,000 tons. The engineers of the mine are convinced that these figures will be increased in May to 90,000 tons, while for the remainder of the current year the output is expected to be 150,000 tons a month.

The task before the directors of the new company was to develop what was really a primitive concern and to furnish with the necessary modern plant and

machinery a great enterprise, which includes no less than four distinct collieries—Tongshan, West Shaft, Lingsi, and Panpetien. The company has also to develop and furnish with all the necessary constructions the ice-free port of Chinwangtao, which is not, however, always as ice free as it should be. The property of the company further includes a cement factory, a brick factory, a silver mine, establishments at most of the open ports, and a fleet of six steamers. The work to be done in the current year includes the increase of this fleet and the completion of the port of Chinwangtao, the whole of which within a radius of 3 miles, including the branch railway which connects with the Pekin-Shanhaikwan Railway, belongs to the company. The wharves of Chinwangtao will take at one time six or seven ocean steamers and will have a depth alongside of at least 18 feet, and the cargoes of the steamers will be loaded into railway trucks and thus reach the general railway system of North China.

REFORM EDICTS IN CHINA.

Minister Conger sends from Pekin, February 6, 1902, copies of two imperial edicts recently issued, which, he says, indicate the loosening of the bonds of old custom and the present trend toward a new order. The removal of the prohibition of intermarriage between Manchus and Chinese is of political significance, as indicating a desire to emphasize less strongly the distinction between rulers and ruled. The other edict is in line with the policy declared in a number of recent edicts to encourage the study of Western methods.

The edicts follow:

[Translation from the Pekin Gazette of February 1, 1902.]

The following imperial edict was issued to-day:

"Our dynasty, distinguished for its benevolence, has richly bestowed its benefits in overflowing measure throughout the whole Empire. No partiality has been shown to Manchu or Chinese, whether high official or people; but according to an old custom there has been no intermarriage between them. This was originally because, when the dynasty was first established, the customs and speech of the two peoples were considerably unlike, and therefore the prohibition was made. Now, however, customs and beliefs are alike, and, more than two hundred years having passed, we ought to defer to the general feeling and remove the prohibition; and therefore we command that Manchu and Chinese, whether officials or people, be allowed to intermarry. Let there be no bigoted adherence to old custom. But, as for the Chinese women, for the most part, they have followed for a long time the custom of foot binding, which is an injury to the good order of creation. Hereafter, let the officials and gentry all exert themselves to gently persuade and lead the people, and cause them all to understand, in the hope that this old custom may be gradually abolished. But on no account will it be permitted officials, clerks, or the slippery yamên runners to take advantage of this to go about harrassing the people with their prohibitions. But at the times for selecting girls for palace attendants, the Manchus must still be chosen; there must not be any selection of Chinese, lest we fall into the corrupt practices of the former Ming Dynasty. We therefore make this restriction out of deference to the feelings of the [Chinese] people. Let this edict be published abroad for general information.

"Respect this."

[Translation from the Pekin Gazette of February 1, 1902.]

The following edict was issued on the 23d of the Twelfth Moon (February 1, 1902):

"Our international relations are of the utmost importance. At the present time, when we are seeking to restore prosperity to the people and the Government, we ought more than ever to gather together those of superior merit. If those who go abroad will devote themselves earnestly to the investigation of foreign methods of government and the sciences of those countries, we may hope to so increase our talents as in some measure to meet the needs of the Government. At present, there are many students from the various provinces, zealous in acquainting themselves with current affairs, who have gone abroad to study in foreign schools and learn a profession. This practice has never obtained among the imperial clansmen and the eight banners, and it is urgently necessary that they become more liberally educated. Let the imperial-clan court and the lieutenant-generals of the eight banners select young men from each banner between the ages of 15 and 25, of good character, intelligent minds, and sound bodies, and prepare a list to be sent to the grand council, who may report to us and await our appointment of an official to reexamine and make a selection of a certain number, who shall be furnished with means and sent abroad to travel and study, availing themselves of the opportunity to familiarize themselves (with foreign methods) and enlarge their experience, that they may assist the court in its purpose to cultivate talent for the service of the Government.

"Respect this."

APPLES IN CHINA.

Consul H. B. Miller writes from Niuchwang, January 25, 1902, to the editor of an Oregon newspaper (to whom advance copy of the report has been sent) in regard to the export of apples from the Pacific coast to the Orient. The consul instances a shipment of fifty boxes of apples which were sent from Portland on September 28, 1901, and reached Niuchwang November 10. They were packed in ordinary light 10 by 11 by 22 inch boxes, cleated on both sides, and the apples were wrapped in paper. The packages held in good shape, and every box arrived intact. The percentage of loss was greatest with the Red Russian variety (75 per cent) and least with the Ben Davis (2 per cent); the Spitzenberg lost 10 per cent, the Shannon Pippin 25 per cent, and the Jonathan 50 per cent. California ships a quantity of third-grade yellow Newtons to China. Some of these, says Mr. Miller, are consumed by foreigners, but most of them go to the Chinese fruit stands and restaurants and are eaten by natives. The Chinese appetite for fresh fruit is strong, and apples are in great favor; the only obstacle to the creation of a large market is the inability of the masses to purchase. The average Chinaman does not distinguish the different varieties of apples, and if inferior grades could be sent at low rates an extensive outlet could be created. Northern routes are the best for shipping green fruits. All shipments of apples for the northern ports of

China should be sent by October 1, on account of the danger of freezing if they arrive late in the season. If the fruit reaches North China in good condition, it will keep well on account of the dry, cold climate. The presence of the Russians in Vladivostock, Port Arthur, and Dalny will increase the market for our apples, as the Russians like this fruit very much.

FRUIT RAISING IN JAPAN.

Fruit growing has not hitherto been an important industry in Japan, and when attempted it has been as a side occupation of the farmer or gardener, there being few farms in which fruit forms the staple crop. Fruits originally cultivated, and probably native in Japan, include the orange, pear, peach, sour plum, almond, grape, persimmon, loquat, pomegranate, gingko or salisburia, and fig.

The "suykan," or Japanese sweet orange, is smaller, sweeter, and less juicy than the oranges raised in America, and the thin membrane separating the sections of the fruit is tougher; it has a very pleasant flavor, and is much used for food by both natives and foreigners. It is cultivated all through the warmer regions of Japan, and is the most plentiful of the fruits raised here, being found in the markets from early autumn until late the following spring. The country also produces an orange larger and more acid than the California product, and somewhat bitter. It is not much valued, and is produced in small quantities only.

The persimmon comes next to the orange in the number produced, and is a favorite with the natives, but its season is comparatively short. It closely resembles the persimmon of our Southern States. The sour plum is extensively cultivated and yields a good crop, but the other fruits named above, though more or less widely grown, are produced in much smaller quantities—the fig being most abundant and most valued of the less important fruits. The Government has introduced peaches, pears, and grapes from Europe and America, and has found the soil and climate well adapted to their production, so that these are now cultivated in addition to the native varieties of the same fruits.

Of the fruits wholly unknown in Japan until introduced from abroad, the apple has proved most successful, and it has become a chief product of some districts in the Hokkaido, or northern, islands. The apples are of fine appearance and excellent flavor, and the trees yield a profit very encouraging to the cultivator, so that the area of their production is being increased. Cherries also have been introduced, but the fruit is inferior. However, the greater skill in cultivation which will come from longer experience may yet produce

very satisfactory results. The native cherry tree produces a profusion of beautiful flowers, but no fruit, and the Japanese gardeners have cultivated it solely with reference to these, having developed a variety with clusters of large, double blossoms. Strawberries and other small fruits are raised by gardeners in the vicinity of the large cities, and the plants bear fruit of fine appearance, but little flavor.

The natives eat fruit chiefly fresh, and its use as a table diet is not general, although increasing. The processes of drying and canning fruits are beginning to come into use, but only as a means of preserving the fruit for home consumption, not for export.

Dried raisins, apricots, figs, and prunes are imported in small quantities, but dealers here say that they sell these goods only to foreign residents and to ships laying in supplies for a voyage. During the moist, hot summer, flour, meal, dried fruit, and all similar merchandise quickly becomes infested with maggots unless securely protected, and it is therefore necessary that the fruit should be put up in bottles, tin cases, or closely sealed boxes before it is shipped to this country. In view of the growing appreciation of the native for fruit as an addition to his rather limited bill of fare, an enterprising agent might be able to find, or create, a market here for the fruit exports of the United States—a market which will, however, be limited by the poverty of the working classes; for when $6 or $8 a month buys food, fuel, and clothing for a family of four or five persons, dried fruit at 12 cents a pound must needs be a rare luxury.

E. C. BELLOWS,
Consul-General.

YOKOHAMA, *February 22, 1902.*

ICE-BREAKING STEAMERS IN SIBERIA.

VLADIVOSTOCK.

Ten years ago, from the middle of November to the latter part of March, the port of Vladivostock was practically closed to the outer world. Mail came across from European Russia at long intervals by tarantass. The ice breaker *Nadorshnie*, or *Reliable*, was built at Copenhagen in 1896 and began work here in December, 1897, just as the railroad from Habarofsk to Vladivostock was completed. She is an iron steamer of 1,525 tons; 3,200 horsepower; 4 boilers; length, 198 feet; breadth, 42½ feet; and easily makes 5 knots in 6-inch ice. Besides ice breaking, she can be used as a life-saving craft, and can raise 1,700 tons of water in five hours.

Active service with the boat usually begins at the end of November and lasts into March, varying, of course, with the severity of the season. The ice in Golden Horn Harbor averages from 5 to 8 feet.

The *Nadorshnie* breaks it to the depth of 7 feet, cutting it like cheese, and boasts of having been stopped but once, at a depth of 14 feet.

By the aid of this powerful steamer and her tenders, this harbor is kept open practically the entire year. The smaller boats, three in number, assist in keeping the ice broken near the wharves, and clear a passage eastward toward the docks and arsenals. A wrecking steamer formerly here is now at Port Arthur. The main channel here needs to be kept open only from 12 to 15 miles in the worst winters, when the thermometer registers 30° to 40° Réaumur. This winter, one of the coldest in many years, the largest vessels of the volunteer fleet and the new steamers of the Chinese Eastern flotilla have entered, anchored, and departed without trouble. The new steamer *Kozu-Maru*, from Tsuruga, northern Japan, is now daily expected, to open the new line, which will make direct connection with the Pacific coast. The Chinese Eastern Railway fleet is interested in this line. It will run the year round, and will not be withdrawn during the winter months, like the fleet of the Nippon Yusen Kaisha. In summer, the *Nadorshnie* puts up for the usual repairs, which are slight. She is always in commission and ready to render service as emergency dictates. She was paid for from the funds of the Great Siberian Railroad. The intention is to have another steamer, larger and more powerful.

LAKE BAIKAL.

The ice breaker *Baikal*, used on Lake Baikal, is built of Siemens & Martin steel. The length is 290 feet; breadth, 57 feet; draft forward, 18 feet; draft aft, 20 feet; speed, 12 knots; displacement, loaded, 4,200 tons. There are three triple-expansion engines of 1,250 horsepower; two engines abaft, separated by a fore and aft watertight bulkhead, and one engine placed forward to turn the propeller and assist the ice breaker in cutting the ice. The propellers are all four bladed. Fifteen cylinder-type boilers are placed in two compartments divided by a bulkhead. Water-ballast tanks form the double bottom. There are, besides, fore and aft ballast tanks; capacity of all tanks, 580 tons. The fore and aft ballast tanks are to put the steamer into position for crushing the ice. A steel belt runs around the water line. It is composed of sheets 1 inch in thickness, riveted from the inside. To obviate the damage from ice striking the sides at the water line, there are wooden wedges, on top of which logs are placed. This wooden belt is 2 feet thick. The *Baikal* resembles Nansen's *Fram*, except in the construction of bow and stern, which are so built that the *Baikal* can move forward or backward with equal facility while breaking the ice. Twenty-five loaded passenger cars can be placed on the

main deck, where there are three pairs of rails. One hundred and fifty passengers can be accommodated in the cabin. The *Baikal* can cut ice 26 feet thick. It is supposed to be the second largest ice breaker in the world, the *Ermak* being first.

The second boat, the *Angara*, is 195 feet in length, 34 feet broad, has a draft of 15 feet and a speed of 12½ knots, triple-expansion engines of 1,250 indicated horsepower, 4 locomotive-type engines and boilers, separated by water-tight bulkheads. The *Angara* is mainly used to carry passengers. It was put into service in 1900. When the wooden floating dry dock, wharves, and a gigantic pier are completed, the whole cost of the lake transportation may be estimated at 5,621,000 rubles ($2,894,815). In December, 1900, the *Baikal* broke her propeller. When this happens, the *Angara* is not able to break the way herself. Ordinarily, she follows in the wake of the other. The difficulty in the winter transit of Lake Baikal lies in the fact that the entire surface is frozen solid. The broken ice can not be removed, and there is of course no tide to carry it away. The *Baikal* makes trips from December to April, and she has been known to be a week making the 46 miles across.

R. T. GREENER,
Commercial Agent.

VLADIVOSTOCK, *February 12, 1902.*

NOTES.

Prohibition of Mining in Eastern Siberia.—Under date of March 1, 1902, Commercial Agent R. T. Greener writes from Vladivostock:

It is reported in a Seattle paper that an expedition of six men is preparing to sail in the spring to engage in mining in Siberia. They have no fear, it is said, of interference by the Russian Government, "as the latest imperial decree does not discriminate between natives and foreigners in mining on the eastern shore of Siberia." It should be understood that the Minister of State and Domains, July 18 last, proclaimed the closing to gold, coal, and oil exploitation of the entire district of the maritime province, Posiet to Bering Strait, lying within 100 versts (66 miles) of the sea coast, the Island of Sakhalin, and all other islands on the coast. The governor-general at Habarofsk has the right, in connection with the Ministry of State and Domains, to grant permits in cases where parties have already been admitted to mining privileges and secured titles in the territory now closed, when such titles were secured in good faith by Russian agents or firms who are thoroughly responsible. Two applications of foreigners to mine within the forbidden strip are now pending—one American, the other English. If granted, they will be to parties resident here, owning mines, who have Russian partners.

Customs Receipts at Kyao-chau.—Consul-General R. Guenther reports from Frankfort, April 15, 1902:

The Eastern Asiatic Lloyd publishes the following figures with reference to the development of the commerce of Kyao-chau, the German colony or protectorate in eastern Asia. The receipts of the custom-house at Kyao-chau since its opening have been:

Period.	1899.*		1900.*		1901.*	
	Hk. taels.		*Hk. taels.*		*Hk. taels.*	
First quarter	.....	.....	13,362	$9,630	21,625	$15,851
Second quarter	.....	.....	1,626	1,172	27,687	20,295
Third quarter	9,946	$7,166	5,146	3,709	24,237	17,766
Fourth quarter	22,691	16,349	24,849	17,909	33,857	24,817
Total	32,637	23,515	44,983	32,420	107,416	78,729

* In 1899, the haikwan tael was valued by the United States Mint at 72.05 cents; in 1900, at 72.07 cents; in 1901, at 73.3 cents.

Public Works in Kobé.—Consul S. S. Lyon sends from Hiogo, March 7, 1902, a newspaper clipping giving the programme of municipal works for the coming year. This includes the completion of a second extension of the waterworks; providing means for linking the land and sea transportation systems; railway improvements in Kobé; the widening of streets of the city; improvement of sewerage facilities; the erection of an isolation hospital; extension of harbor works; the provision of a disinfecting house; laying out of parks; improvement of educational facilities; and rebuilding of the city offices. In a statement made before the city assembly, the mayor said the debt of the city and its wards amounted to 586,569.80 yen ($292,111.76), besides the waterworks loans.

Quinine Auction at Batavia.—Under date of March 11, 1902, Consul B. S. Rairden, of Batavia, reports that at the second public auction sale of quinine for the year 1902, held at the Merchants' Exchange, Batavia, on the 5th instant, the following prices were realized:

Editio II, consisting of 2,494.8 kilograms (6,602.34 pounds) of sulphate of quinine, sold in 110 lots, each lot containing 22.68 kilograms (49.99 pounds). The entire lot was sold at from 21 florins ($8.44) to 21.75 florins ($8.74) a kilogram (2.2046 pounds).

The average price realized at this sale—21.655 florins ($8.70) a kilogram—equals the unit price of 0.0853 florin (3.43 cents) for the bark at the Amsterdam market, which is considerably higher than the average price realized at the last sale.

The next sale is advertised to take place April 9.

Steamship Line between Java, China, and Japan.—Consul F. D. Hill writes from Amsterdam, March 21, 1902:

The Dutch ministry proposes to grant a Government subsidy of 300,000 florins ($120,600) per year during the first five years, 250,000 florins ($100,500) per year during the next five years, and 200,000 florins ($80,400) during each of the succeeding five years to a steamship company which shall establish a monthly service (thirteen steamers per year) under the Dutch flag between Java, China, and Japan. The steamers shall call at the following ports: Sœrabaya, Samarang, Batavia, Hongkong, Yokohama, Kobé, and Amoy. The profits in excess of 5 per cent shall be paid to the Government until the subsidy shall be liquidated.

Russian Exposition in Amur.—Consul-General W. R. Holloway, of St. Petersburg, says, under date of April 15, 1902, that the Assistant Minister of Finance has just announced that the governor-general of the Amur territory is about to organize an exhibition at Kirin for the purpose of interesting the Manchus and Chinese in Russian manufactured products. The minister desires that the exhibition shall be as comprehensive as possible, and to this end requests the earnest cooperation of the representatives of all commercial and industrial committees and guilds of the chief producing centers of the Empire. The ministerial communication expresses the hope that, with the energetic support asked for, Russia may be enabled to secure, if not a monopoly, at least the lion's share of the trade and commerce of eastern Asia.

Traffic on the Manchurian and Siberian Railway.—Under date of March 26, 1902, Consul-General W. R. Holloway writes from St. Petersburg:

The rolling stock on the Manchurian Railway has been largely increased and improved, and there is a marked increase in the passenger traffic. The journey from Vladivostock to Irkutsk is now accomplished in fifteen days. The Krasnoyarsk-Irkutsk section will be completed during the coming summer. It is officially announced that the express between St. Petersburg and Vladivostock will be started by the 15th of April, and the time will be reduced from thirty days to fifteen days.

Increase in Railway Rates in Russia.—Under date of April 9, 1902, Consul-General W. R. Holloway reports:

The Minister of Ways of Communication has announced an increase in the rate of fare on Government railroads in Russia, ranging between 5 and 20 per cent, to take effect May 1, 1902, viz, 40 kopecks (20.6 cents) on third-class tickets, 60 kopecks (30.9 cents) on second-class tickets, and 1 ruble (51.5 cents) on first-class tickets for each 50 versts (39.7 miles) exceeding 3,010 versts (1,995.6 miles). There is an additional charge of 1.05 rubles (54.1 cents) for each 10 pounds of luggage per 70 versts (46.4 miles). On the Moscow-Tula-Tcheliabinsk-Irkutsk line (Siberian express), the second-class rate is increased by 5 per cent. On the Nord express (St. Petersburg-Wirballen) and the South express (St. Petersburg-Nice) the first-class rate is raised 20 per cent. On all express trains on the Warsaw and Moscow lines, first and second class tickets are increased from 5 to 10 per cent.

Relief to Famine Sufferers in Russia.—Consul-General W. R. Holloway, of St. Petersburg, April 2, 1902, says that, according to official reports just published, the Russian Government expended, in 1901, 25,961,689 rubles ($13,370,270) in money and foodstuffs for the relief of the famine-stricken districts affected by the last year's crop failure. The ministerial department charged with the distribution of relief still has 16,500,000 poods (595,848,000 pounds) of grain in stock, but further extensive purchases must be made, and to provide cattle, horses, seed grain, etc., an additional 10,000,000 or 12,000,000 rubles ($5,150,000 or $6,180,000) will be required. Scurvy and typhus prevail throughout the famine district, and the necessities of the people are taxing to the utmost the resources of the Red Cross Society.

American Efforts in Syria.—Consul G. B. Ravndal writes from Beirut, March 17, 1902:

In his last annual report on the commerce of Syria (published at Berlin in December, 1901), the German consul-general estimates the imports of Beirut at about $10,000,000 and the aggregate imports of the ports of Yafa, Haifa, Akka, Sidon, Tripoli, and Latakia at about $3,000,000. As to the distribution of this trade, he says:

> Of these imports, England must be credited with 40 per cent, Austria-Hungary with 15 per cent, Germany with 12 per cent, France with 10 per cent, and the other countries combined with about 23 per cent. Germany is third among the nations that sell to Syria and Palestine. France's exports to these parts have diminished during the last few years, to the advantage of Italy, Germany, Belgium, and the United States. Lately, the United States has been making efforts to get a firm foothold in Syria. To tell the truth, the Americans have succeeded in competing successfully with the European manufacturers in various lines. They have introduced their flour, cotton fabrics, farm machinery, iron and glass ware, nails, beer, and canned goods.

Steamship Line to Egypt.—Under date of March 4, 1902, Mr. Long, agent and consul-general at Cairo, reports:

The steamship *Seriphos*, the first of a regular line of steamers running between New York and Alexandria, arrived at Alexandria March 2, direct from New York (calling at Malta), in twenty-one days. After discharging 200 tons of American cargo, having no passengers, she left for other ports, including Odessa. This line is composed of German steamers belonging to the Hamburg-American and Deutsche Levante companies.* The importance to American trade of this direct line of steamship transportation between the United States and Egypt can not be overestimated. Our commerce

*ADVANCE SHEETS Nos. 1244, 1259, and 1298; CONSULAR REPORTS No. 258.

here is experiencing a steady and healthful growth, and with these greatly increased facilities for shipment of goods, saving time and expense, I am justified in confidently predicting a still more rapid and satisfactory increase.

Demand for Coal-Handling Appliances in Lourenço Marquez.—Consul W. S. Hollis reports from Lourenço Marquez, March 19, 1902, that, in a recent conversation with Senhor Albers, head of the harbor commission, he was informed that it is intended to make that port a great coaling station. Senhor Albers particularly requested to be put in communication with people in the United States who could supply him with the most economical and up-to-date coal-handling appliances, such as trestles, cranes, and machinery for delivering coal from freight cars (3-foot 6-inch gauge) into the holds and bunkers of vessels. Any written or printed matter addressed to the consul will be submitted to Senhor Albers.

Medical Practice in the Transvaal.—Acting Consul W. D. Gordon sends from Pretoria, March 20, 1902, copy of the Government Gazette of January 3, 1902, containing a proclamation in regard to the establishment of a medical board in the Transvaal. It provides that licenses must be obtained by persons (not already duly admitted to practice) who desire to practice as physicians, surgeons, dentists, chemists, or druggists. The license is to be obtained from the secretary of the Transvaal administration, and before obtaining it a diploma or certificate entitling the holder to practice in the country where it was granted must be submitted. The license will not be granted unless it is shown that in the country which conferred the diploma, British subjects legally qualified to practice medicine in Great Britain are afforded privileges equivalent to those granted by license under this proclamation.

Dental Practice in Uruguay.—Consul A. W. Swalm, of Montevideo, under date of February 26, 1902, writes:

The large number of inquiries received at this consulate as to the chances for success of American dental surgeons in Uruguay leads me to make a report on the subject. There are very few graduated American dentists in practice in Uruguay. Dentists are permitted to practice only after a rigid examination in all dental branches, in Spanish and oral, the fees for which are about $200. All diplomas must be duly certified by the Secretary of State and the Uruguayan consul-general or the legation at Washington, to the effect that the school named is recognized by the State laws. The

ability of American dentists is well known in foreign countries, especially in South America, where there are no good dental schools, and the native practitioners have a strong feeling against these competitors. The same amount of effort in the United States would probably bring more success. Save only where one has the advantage of a thorough knowledge of the Spanish language, I sincerely advise young American dentists to remain at home.

Colombian Tax on Panama Railway Tickets.—Under date of April 14, 1902, Consul-General H. A. Gudger, of Panama, says:

The Government here has imposed a tax on railroad and steamship tickets. The tax on each first-class ticket is $8, and on the second class $4 (Colombian silver).* All tickets sold in the United States or other points via the Isthmus are either of a class to be countersigned by the agent of the company on the Isthmus, or contain an order for the agent to take them up and issue tickets for the balance of the journey. In each case, the money for the entire trip is paid at the point where the ticket is sold, and the baggage is checked through. Section 1 of the decree places the tax on any and all tickets issued or countersigned in the Department.

Opening for Brewery in Para.—Under date of April 7, 1902, Consul K. K. Kenneday writes from Para:

About two years ago, a local company was organized to establish and operate a brewery in Para. A large modern building was erected and a complete outfit of first-class machinery purchased. Then came the financial crisis and the company failed. The machinery and plant lie on the docks in this city, where they were landed, and the building stands idle. The fixtures, machinery, building, and all the other holdings of the company can now be purchased for a mere tithe of the cost—probably 10 cents on the dollar. A quantity of beer is consumed in Para, and it could be increased if the price were made less prohibitive. I am semiofficially informed that the city government of Para is ready to place a municipal tax on Rio beer in favor of the local product, if any responsible company will take charge of the Para brewery.

American Enterprise on the River Acre.—Consul K. K. Kenneday, of Para, under date of April 7, 1902, says:

I am informed, upon what I believe to be good authority, that

*About $3.20 and $1.60 gold, according to the United States Mint valuation of April 1.

a company called the Bolivian Rubber Company, Limited, has been organized by American bankers and capitalists and has secured a large concession on the River Acre. The concession is for a term of thirty-five years, during which time the company is to have full authority to collect customs in and to exploit the territory granted, receiving a certain percentage of the dues collected and all other profits derived from working the grant. In return, the company obligates itself to establish a regular line of steamers between the River Acre and the United States.

Opening of Argentine Ports to Live Stock.—Minister Lord transmits from Buenos Ayres, February 21, 1902, copy of a note from the Argentine Government relative to the importation of United States live stock into the Argentine Republic. A decree issued February 17, 1902, it is stated, rescinds the prohibition to import live stock from Great Britain or from countries which have their ports open to importations from the United Kingdom. The United States is included among the countries to which the above-mentioned decree refers.

Manufacture of Wagons and Shingles in British Columbia.—Consul L. E. Dudley, of Vancouver, reports, April 11, 1902, that a company has been formed in that city for the purpose of manufacturing wagons. Heretofore, says the consul, there have been very few wagons made in Vancouver, and all the higher class vehicles have been bought either in the United States or in eastern Canada. Recently, $2,000 was raised by subscription to purchase a new ambulance for the city's use, and it was found necessary to place the order with an Ohio dealer.

Under the same date, the consul adds:

The recent placing of an export tax on cedar logs has resulted in the establishment of several new shingle mills in this vicinity and in an increased output from the mills already in existence. A very large proportion of the shingles manufactured here is shipped to the United States. Without doubt, this duty on cedar logs has to some extent handicapped the manufacture of shingles in the State of Washington, and has greatly stimulated the local industry.

Mill Saws in British Columbia.—Under date of April 2, 1902, Consul L. E. Dudley reports from Vancouver:

There seems to be an opening for a manufactory of mill saws in this city. The demand would be large, if the saws manufactured

were of approved quality. It is said that Canadian saws are not satisfactory, and that the United States product is imported, although some of them cost $24 each and there is a duty of $8. At this price, there would be a large profit for any manufacturer who would take the trouble to invest here. I shall be glad to procure further information for any person who may desire to consider the subject.

Proposals for Electric Pump at Montreal.—Commercial Agent F. S. S. Johnson writes from Stanbridge, April 7, 1902:

An opportunity presents itself to our manufacturers to compete with Canadians in proposals for an electric power pump for the Montreal waterworks. Tenders for the electric pumping engine will be received up to noon on Tuesday, the 6th of May, at the office of the city clerk, City Hall, Montreal, for the erection at the high level station of a 5,000,000-imperial-gallon pumping engine, to be driven by electricity against a pressure of 26 pounds per square inch.

American Locomotives in Bavaria.—Vice-Consul-General D. B. Mason writes from Berlin:

Concerning the much-discussed subject of the Baldwin locomotives, which were purchased for trial, examination, and for the suggestions which their construction might afford to the Bavarian engine builders, the Berlin Morning Post of February 13 contains the following interesting paragraph:

The statement is often made, when the danger of American competition is under discussion, that American manufactures can not compare with German goods in quality. It was reported recently that the four engines which were purchased for the Bavarian railroads had not been satisfactory as to durability. In refutation of this report, it has been officially stated that the American express and freight engines have been very satisfactory, owing to the simplicity of their construction, both as to work and durability, and as yet there is nothing to indicate that they will not last as long as engines built in Germany. Some of the parts are now considered so simple and effective that they will be used as models in further construction.

New German Car Coupling.—Consul-General O. J. D. Hughes writes from Coburg, March 22, 1902:

A new car coupling is being tried on the line from Berlin to Oranienburg, which has for its object to lessen the space between the cars. With this system, the distance has been reduced to 20 centimeters (7.8 inches). The buffers are the same as in the old cars, but the springs, which are a little shorter than before, are built into the cars, thus making the shorter couplings possible. The question

has been raised if the shortening of the couplings will not bring about an increase of danger from collisions. Careful trials, however, have proved that this is not the case, as the effect of the buffers remains the same as in the old system.

Long-Distance Heating in Germany.—Consul-General Richard Guenther, of Frankfort, under date of March 24, 1902, reports the completion at Dresden of the largest long-distance heating plant in Europe. From a central station, says the consul-general, many public buildings on the left bank of the River Elbe, including the theater, the museum, the castle, the royal kitchen, the custom-house, etc., are heated. The greatest distance over which heat is transmitted is three-fourths of a mile. The total heat consumption per hour is 15,200,000 heat units. The usual steam pressure is two atmospheres. Ten of the fourteen boilers are used, and to guard against accidents two main lines of pipes have been provided. The loss of heat in transmission is from 4 to 4½ per cent. The pipes are protected by two layers of tin, the inner layer being perforated and the outer one covered with silk. The largest pipes have a diameter of 216 millimeters (8.51 inches).

Congress of Labor Insurance at Düsseldorf.—The Department has received from the German embassy, Washington, under date of March 18, 1902, notice of the sixth international congress of labor insurance against accidents, to be held in Düsseldorf from June 17 to 24, 1902, on the occasion of the Rhenish Westphalian Industrial Exposition. An invitation is extended to the United States to send official delegates. All communications relative to participation are to be addressed, before June 1, to the office of the committee on organization, Bismarckstrasse 23, Düsseldorf, Germany. The price of membership is 8 marks ($1.90). Round-trip tickets, valid for forty-five days, will be issued at reduced rates from the German frontiers. This congress will continue the work of the former congresses, with the view of ameliorating the lot of the working classes. Questions of hygiene, of prevention of accidents, of insuring against old age and invalidism, together with the best measures of insurance in favor of widows and orphans, will be examined.

International Congress on Workmen's Dwellings in Düsseldorf.—The Department has received from the German embassy, Washington, under date of April 22, 1902, notice of the International

Congress on Cheap Dwellings, to be held in Düsseldorf from June 15 to 19, 1902, in connection with the exhibition of industry. An invitation is extended to the United States to be represented at the congress. A copy of regulations of the proceedings, as well as of the questions to be discussed, is inclosed. The main subjects are: (1) Dependence of rent of dwellings on price of site, building cost, and taxation; (2) the self-support of building organizations in connection with the general condition of dwellings; (3) promotion of the establishment of cheap dwellings by state and parish, and by public corporations. The last congress was held in Paris in 1900. Applications for participation in the congress are to be addressed directly to the secretary general, Dr. H. Albrecht, Berlin, Grosslichterfelde, Schillerstrasse 11. Any person or corporation, by paying a fee of 10s. ($2.43), can become a member.

Protection of Metallic Tubes in France.—Consul Thornwell Haynes, of Rouen, March 28, 1902, reports that M. Bergier, a Frenchman, has just discovered a composition for protecting metallic tubes against the action of liquids. The composition, says the consul, consists of the following:

	Kilograms.	Pounds.
Dry sand	100	=220.46
Potash or soda	83	=182.9
Nitrate of potash	2	= 4.4
Minium	15	= 33
Pulverized marble	5	= 11
Dichromate	.1	= .22
Red oxide of copper	.05	= .11
Regulus of antimony	.05	= .11

This is applied to the interior of the tube as follows: The vitreous substance is first blown into cylindrical form and is then introduced into the tube, which has been brought to a white heat, the blowing being continued until the composition adheres to the metal. The consul adds that the composition is claimed to have an expansion and contraction equal to that of the metal which it protects.

Potato Disease in France.—Consul Covert reports from Lyons, March 15, 1902, the conclusions of the committee appointed* to investigate the potato scourge in the south and west of France. The committee says:

It is caused by a parasite of bacteria which the scientists denominate *Bacillus solanearum* and *Bacillus solanicolæ*, both names being used.

The disease is first manifested by the leaves of the plant gradually becoming dry and yellow. At the same time, the stalk shrinks and dies from the bottom up.

*See ADVANCE SHEETS No. 1157; CONSULAR REPORTS No. 255.

Potatoes are often attacked very young, and from the moment of the formation of the bulb the disease may be followed from the main stem through all the ramifications. When the stem is attacked it bears brown, yellowish spots, under which a gummy matter is formed.

This disease is communicated from the soil. It is therefore recommended that, as a preventive measure, a number of years should intervene before planting potatoes again in ground that has once been infected, and only potatoes grown in ground entirely free from the disease should be employed as seeds.

Bogus Estates in Holland.—Minister Newel, of The Hague, under date of April 11, 1902, reports that a very large number of inquiries are received at the legation and at the consulates at Amsterdam and Rotterdam as to various imaginary estates in Holland—E. G. Kronk, Anneke Jans, Du Bois, Metzger, Brosius, Fischer, Snyder, and others—more than twenty in all. The inquiries come from all parts of the United States. Since 1898, the United States minister and consuls in Holland have received more than two hundred and thirty letters from Americans on the subject. The minister says that he is authorized by the authorities at The Hague to state not only that there are no such estates awaiting distribution, but that there never have been any such estates; and one official is sure, from the nature of things and the Dutch laws, that there never will be any such estates.

Old-Age Pensions in Denmark.—The following extracts are from a letter by Consul J. C. Freeman, of Copenhagen, to the editor of a New York journal,* in regard to old-age pensions in Denmark:

About a dozen years ago, Denmark passed the following law on this subject:

Every native or naturalized person of the age of 60 years, who is found to be unable to support himself or his family, shall be entitled to a public pension on the following conditions:

1. That the applicant has not been found guilty of an action considered dishonorable in public opinion.

2. That his necessity is not due to actions by which he, for the benefit of his children or others, has deprived himself of means of support; that his necessity is not due to an irregular or lavish life, or has not been caused by himself in any other way.

3. That he, during the ten years preceding his application, has been a permanent resident of this country, without having received, during this period, any public relief and without having been adjudged a vagrant or a beggar.

This enactment, so far as I can learn, is regarded as fairly satisfactory. The amount which each beneficiary receives is left to the people of each parish to determine. It varies from $2.25 to $4.50 per month, according to the number of pensioners dependent on the parish.

*To whom the original has been sent.

Wireless Telegraphy in Sweden.—Consul R. S. S. Bergh reports from Gothenburg, March 27, 1902:

A lieutenant-colonel in the Swedish army, Mr. G. Baunerhjelm, has for some time experimented with wireless telegraphy (Marconi's system). It is claimed that he has recently made improvements in this line which, if practical, will be useful for military purposes and at sea. The newspapers state that he has invented an electric radiator or reflector which, combined with the Marconi system, can send the electric waves, and with them the message, in the desired direction. I have not read any description of the apparatus, which is now being tested by Swedish experts, but its construction is said to be based on the theory that electric waves are reflected by metallic surfaces. The drawback of the system seems to be that a telegram can not be sent in a certain direction a longer distance than 25 or 30 miles, but for many purposes this may be sufficient. The experiments will be continued, and further improvements may be made.

Profits of Fisheries of Norway.—Consul V. E. Nelson reports from Bergen, March 24, 1902:

A comparison has been drawn as to the profit of the fisheries in the sea and in the rivers, which shows that the former are three times as remunerative as the latter. In 1898, the figures were:

Description.	Quantity.		Value.	
	Kilograms.	*Pounds.*	*Kroner.*	
Sea fisheries	767,719	1,688,982	923,147	$247,402.06
River fisheries	229,815	505,590	276,455	74,089.94

These statements do not include the daily fisheries in the sea (which yield about 132,000 pounds, worth $10,720, yearly) or the fisheries in some rivers, where 77,000 pounds, worth $5,360, are caught.

Demand for Liquid Glue in Ireland.—Consul W. W. Touvelle reports from Belfast, April 17, 1902:

From recent investigation, as well as from inquiries that have been made at this office, I am satisfied that a good opportunity is offered American manufacturers for the sale of liquid glue, and especially of liquid fish glue, in Belfast. The manufacture of glue in this consular district is entirely inadequate to supply the demand of the trade. From the Belfast harbor commissioner's report for 1901, I find that 356 tons of glue were imported into Belfast, all of

which came from England. Messrs. McCaw, Stevenson & Orr, Limited, of Linenhall Works, Belfast, color printers and publishers of schoolbooks, are extensive users of liquid fish glue, and are desirous of having their firm name brought to the attention of manufacturers in the United States.

Electric Railways in the English Midlands.—Consul S. C. McFarland writes from Nottingham, February 25, 1902, that the electric-railway schemes in Nottinghamshire and Derbyshire* have met with the opposition of the established railway lines, and the result is that the several plans have been withdrawn and the promoters have submitted the matter to Parliament.

American Meat in German Cans.—Consul E. A. Man sends the following from Breslau, April 8, 1902:

It has been stated in the press here, from what was said to be a reliable source, that, in consequence of the law which prohibits the importation of American and Australian canned meats into Germany, American meat is now brought here in barrels, packed in cans of German manufacture, provided with German labels, and sold as German canned meat. Inquiries, on my part, to substantiate this published information have proved without result.

German Substitute for Petroleum.—Consul J. H. Worman reports from Munich, March 4, 1902, that, according to the newspapers, a Hamburg chemist has discovered a fluid which, when added to ordinary water, produces a liquid that can not be distinguished from petroleum. It can be used for lighting as well as for heating purposes. When burned in a lamp with an ordinary wick, it gives an extraordinary white light of double the strength of a petroleum flame. The fluid is not explosive. A company, it is said, has been formed in London for the exploitation of this discovery.

Austrian Demand for Coal.—Consul F. W. Hossfeld writes from Trieste, April 8, 1902:

I have to report that Mr. Nikolas Révay, of I Jasomirgottstrasse 5, Vienna, desires to contract for about 123,000 tons of bituminous coal, to be delivered at his option at Trieste or Fiume, Hungary, within one year. The coal, which is desired for the manufacture of briquettes and coke, should possess baking qualities,

*See ADVANCE SHEETS No. 1236; CONSULAR REPORTS No. 258.

should be practically free from sulphur, and should not contain more than from 5 to 6 per cent of ashes. Fine coal up to three-fifths of an inch in diameter is preferred. There should be, if possible, twenty-four semimonthly shipments of about 5,000 tons each. Offers, with analyses, may be addressed directly to Mr. Révay.

Piræus-Larissa Railroad.—Under date of April 2, 1902, Consul F. W. Jackson writes from Patras:

Supplementing my report of March 18, 1902,* upon the Piræus-Larissa Railroad, I would state that, according to the statement of the Neon Asty, of Athens, the general supervision of construction of the proposed line has been given into the hands of the Batignol Construction Company, of Paris.

Inquiries for American Furniture in Turkey.—Consul T. H. Norton, of Harput, reports, March 24, 1902, that there is an increasing demand for American furniture in that city. The inquiries, he says, are chiefly for office furniture and for such kinds of household furniture as may be compactly folded. There is also a demand for the hardware used in the manufacture of revolving chairs, desks, etc. Price lists, with agents' rates, should be sent to Mr. Norton, addressed Mezreh, Mamouret-ul-Aziz, Turkey in Asia.

Copper in Asiatic Turkey.—Consul T. H. Norton, of Harput, under date of February 24, 1902, reporting the results of a recent trip in the vilayet of Diarbekir, says that the magnificent copper deposits at Arghana Maden, in the Taurus Mountains, are being steadily mined and bring a revenue of over $130,000 to the town. The methods of mining and the smelting processes, however, are the crudest.

Russian Sugar Production.—Under date of March 7, 1902, Consul T. E. Heenan sends from Odessa translation of a circular from the Russian Minister of Finance in regard to the estimated quantity of sugar produced and on hand in the year 1901–2. This quantity is at present estimated at 63,610,092 poods (1,025,969 tons). The quantity reserved for home consumption is ordered to be 39,000,000 poods (629,032 tons), which leaves a surplus (including the reserve) of 24,610,092 poods (398,549 tons) to be disposed of.

*ADVANCE SHEETS No. 1318 (April 17, 1902).

Russian Drug-Store Directory.—Consul-General W. R. Holloway reports from St. Petersburg, April 5, 1902, for the benefit of the drug trade, that a directory of 228 pages, giving the addresses of pharmacies and drug stores in Russia, including central Asia and Siberia, has been issued by D. A. Ruffman, of St. Petersburg.

Opening for Automobiles in Japan.—Consul C. B. Harris, of Nagasaki, under date of March 17, 1902, writes:*

It is likely that a cheap automobile, holding one person, to take the place of the jinrikisha (made of the same width), would find a ready sale in Japan. There were, on the first of April, 1901, 206,848 jinrikishas in use in the Empire, 193,249 being made for seating one person and 17,339 for two.

Gutta-Percha and Rubber in German New Guinea.—Consul-General R. Guenther writes from Frankfort, March 15, 1902:

Two years ago, the German Colonial Society offered a prize of 3,000 marks ($714) for the finding of a plant in the German colonies furnishing gutta-percha suitable for cable purposes. A telegram from German New Guinea says that gutta-percha, as well as rubber, has been found in large quantities.

German Interests in Monazite in Brazil.—Consul-General R. Guenther, of Frankfort, informs the Department, April 7, 1902, that the Brazilian Government has recently granted to a German, for ten years, the exclusive right to develop the monazite-sand deposits along the coast of Brazil; and that a company is being organized at Berlin for the purpose of acquiring control of this privilege and for exploiting similar deposits elsewhere.

Additional Duties on Imports at Veracruz.—Consul W. W. Canada, of Veracruz, under date of March 24, 1902, reports that by an executive decree an additional tax of 2 per cent (instead of 1½ per cent, as heretofore) of the total amount of customs duties is now collected from all foreign merchandise imported into Mexico through the port of Veracruz. The proceeds are applied to the sewerage and waterworks now under construction in that city.

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* In answer to inquiries from the manager of a New York firm, to whom the original letter has been forwarded.

White-Lead Company in Mexico.—Consul-General P. C. Hanna reports from Monterey, April 16, 1902, that a company, known as the Mexican White Lead Company, was formed a short time since at Gomez Palacio, Coahuila, with a capital of $100,000. The lead found at that place is said to be pure and of an excellent quality. The duty on white lead is high, says Mr. Hanna, and the company expects to be able to supply the product much more cheaply than it can be imported from the United States.

Dynamite Factory at Monterey.—Consul-General P. C. Hanna, of Monterey, under date of March 28, 1902, says that a concession has been granted for the establishment of a dynamite and explosive plant* at Monterey, convenient to the many mining properties of that district. He is informed that the Société Financière pour l'Industrie de Mexique and the Société Centrale de Dynamite, represented by H. Tron, of Mexico City, are large stockholders in this new organization.

Smelter at Monterey.—Consul-General P. C. Hanna reports from Monterey, March 28, 1902:

I am informed that James Meehan & Sons, Americans, have decided upon the erection of a new smelter at Monterey for the smelting of ore from their mines, located in this district. This may prove of interest to manufacturers of such machinery and equipments as are generally used in smelters.

Decree Affecting Cattle Hides at Panama.—Consul-General H. A. Gudger, of Panama, under date of April 7, 1902, says that the civil and military chief of the Department of Panama has issued a decree in which it is ordered that all hides of cattle killed must be immediately turned over to the Government.

Cipher Code for United States Embassies, Etc.—In pursuance to the recent appropriation by Congress to purchase a cipher code to be placed with the embassies, legations, and consulates of the United States, the Department of State has selected and designated for use the Western Union telegraphic code and international cable directory of the world. This code will not take the place of the official codes of the Department, but will be for the use of the general public.

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*See ADVANCE SHEETS No. 1242; CONSULAR REPORTS No. 258.

Hongkong-Wuchau Communication.—Consul-General W. A. Rublee reports from Hongkong, March 19, 1902, that a Chinaman of American birth has purchased a steamer, which is to ply between Hongkong and Wuchau.

Consular Reports Transmitted to Other Departments.—The following reports from consular officers (originals or copies) have been transmitted since the date of the last report to other Departments for publication or for other action thereon:

Consular officer reporting.	Date.	Subject.	Department to which referred.
R. Guenther, Frankfort	Apr. 7, 1902	Harvests in Germany	Department of Agriculture.
J. E. Kehl, Stettin	Apr. 9, 1902	German naval vessels in private shipyards.	Navy Department.
H. W. Diederich, Bremen	Apr. 9, 1902	Emigration via Bremen	Bureau of Immigration.
J. J. Langer, Solingen	Apr. 18, 1902	Adulteration of food	Department of Agriculture.
F. W. Mahin, Reichenberg	Mar. 31, 1902	Strikes in Austria	Department of Labor.
T. J. Albert, Brunswick	Apr. 17, 1902	Use of boracic acid in preservation of meat.	Department of Agriculture.
J. F. Monaghan, Chemnitz	Apr. 4, 1902	Education of mining students in Germany.	Bureau of Education.
E. Schneegans, Saigon	Mar. 3, 1902	Condition of rice market	Department of Agriculture.
J. G. Long, Cairo	Apr. 4, 1902	Cholera	Marine-Hospital Service.
M. H. Twitchell, Kingston	Apr. 30, 1902	Crop report	Department of Agriculture.
T. E. Moore, Weimar	Apr. 25, 1902	German emigration	Bureau of Immigration.

FOREIGN REPORTS AND PUBLICATIONS.

Machinery in Egypt.—According to the Nachrichten für Handel und Industrie, Berlin, February 10, 1902, the import of locomobiles and locomotives into Egypt in the years 1899 and 1900 was:

Description.	1899.		1900.	
	Number.	Value.	Number.	Value.
Locomobiles	107	$126,679	113	$167,528
Locomotives for State railways	104	797,370	44	296,610

The article adds:

Locomobiles are used for agricultural and for irrigation purposes. Those imported are almost exclusively of English manufacture; in 1900, there were only four from other countries. The English makes are cheaper than the German, but more expensive to run, as they consume more fuel.

Three classes of locomotives are represented in the import list—for field roads, narrow gauge, and broad gauge. The locomotives for field roads were exclusively of German manufacture. England, Belgium, and Germany shared in the importation of locomotives for narrow-gauge roads. The trade, distributed according to countries of origin, was:

Country.	1899.		1900.	
	Number.	Value.	Number.	Value.
England	36	$242,766	16	$80,838
Germany	6	25,348	17	76,814
Belgium	39	314,558	6	62,910
United States	22	209,633	5	76,048
France	1	4,706	.....	.....

Besides the locomotives for State railways, Belgium delivered 20 locomotives in 1899 and England 30 in 1900. The total number of locomotives furnished by Belgium since 1886 is 202. They have proven to be less durable than the English. The American locomotives were ordered chiefly on account of the speed with which they could be delivered. In 1901, Germany delivered 15 locomotives for State railways and Austria 10. The total number of steam engines imported in 1900 was 196, valued at $530,063, against 147 in 1899, valued at $413,996. The import of boilers and parts of machinery reached a value of $663,618 in 1900, compared with $362,974 in 1899.

With the completion of the irrigation system in Egypt by a network of canals, pumps will form a staple article of trade. Hitherto, centrifugal pumps of English manufacture have been most sought for. For the Egyptian market, pumps which can raise great quantities of water in the shortest possible time will be demanded; cost will be the second consideration. According to statistics, the import of pumps and parts of pumps was valued at $133,397 in 1900 and $113,501 in 1899. Motors,

especially gas and petroleum motors, have become an article of import. The English article in both categories is cheaper than the German and has the largest sale. Automobile sport has already gained a footing in Egypt. Germany furnishes some agricultural machinery, thanks to the activity of a German commission house, but the Egyptian agriculturist must become accustomed to the use of machinery. There is a small demand for thrashing and straw-cutting machines. America leads in bicycles in this market; also in sewing machines. Typewriting machines are coming more and more into use.

Liquid Fuel in the Levant.—A recent issue of the Egyptian Gazette says:

The first cargo of liquid fuel to arrive at Alexandria is due in a few days, when the Shell Transport and Trading Company's steamship *Strombus* arrives from Texas with a big cargo of liquid fuel. Of the 30 steamers that the company now possesses, no fewer than 25 are running under liquid fuel. The fire-insurance companies, however, are placing obstacles in the Shell Company's way, although if a lighted torch were plunged into a pailful of liquid fuel the oil would not be ignited. The company's supplies in the Borneo fields are unlimited, and with their other resources, including the vast oil fields of Texas, they are equal to any possible demands.

It is worth noting, as an example of the utility of liquid fuel, that the Shell Company's steamship *Murex* arrived at London last month, after a long voyage under liquid fuel from Borneo via Singapore and the Cape. About 800 tons of liquid fuel were used in the course of the voyage and the whole was stored in the fore and after peaks, the two cofferdams, and the double bottom. Three stokers sufficed for the ship's purposes, as compared with 22 or 24 who had to be carried when coal was used. The total consumption of liquid fuel was from 17 to 18½ tons per day for all purposes. The speed was from 9.7 to 9.8 knots per hour. The total steaming distance was 11,830 miles, which was run with a pause of only three days at Cape Town.

The ordinary daily coal consumption on the *Murex* prior to the introduction of liquid fuel was 24 or 25 tons of Welsh coal. When using liquid fuel, it burned approximately 1.3 pounds of fuel per indicated horsepower, and used about 2 pounds of steam. The steam used in the burners for spraying or atomizing the oil in the furnaces was taken from the main boilers, and when getting up steam in the first instance the necessary steam was supplied from the donkey boiler.

Traffic of Honduras in 1901.—According to Le Nouveau Monde, of Paris, the imports into the Republic of Honduras during the year 1901 were valued at $1,721,631, against $998,066 in 1900. The import trade was distributed according to countries of origin as follows:

Country.	Value.	Country.	Value.
United States	$1,153,435	States of Central America	$44,357
Germany	200,870	Other countries	23,006
Great Britain	194,791	Total	1,721,631
France	42,066		
British Honduras	63,106		

The exports were valued at $2,553,570 in 1901, compared with $2,451,411 in 1900. About 70 per cent of the exports were directed to the United States. The chief articles of export were:

Article.	Value.	Article.	Value.
Precious metals	$941,274	Wood	$113,267
Fruits (bananas)	803,443	Tobacco	88,124
Cattle	230,170	Hides and skins	75,306
Coffee	113,655	Indigo	44,340

The exports of precious metals and of fruits show the greatest increase.

Industry and Commerce in the Argentine Republic.—The following particulars with regard to industry and commerce in the Argentine Republic are taken from the Bulletin of the French Chamber of Commerce of Rosario:

Statistics show the diminution of French commerce in the Argentine Republic. Nearly all of our articles are losing ground. Wines, sugars, cognac, liquors—formerly important factors of French trade—are now supplied by the native production. Half of the trade in articles of dress for women and men, once almost a French monopoly, has been lost. Mills, breweries, drapery works, dye works, etc., have been created by foreign capital, principally German and Italian. New industries are being developed every day. Weaving mills for cloth, tanneries, and shoe and carpet factories diminish every year the importance of the import in these articles. Several mills for the manufacture of wrapping paper have been installed by Italians in different parts of the Republic. All are highly prosperous, giving excellent returns, though they import the raw materials, which might be produced in the country.

An industrial opening is a manufactory of pack cloth. The Government would approve an installation of this kind, since the annual consumption of pack cloth to-day is figured at 60,000,000 francs ($11,580,000). There is also room for a large establishment to supply the country with agricultural machinery. The topography of the land favors the employment of machinery, with the proportions which agriculture has assumed. It is not a rare thing to see three men alone sowing with machinery 140 to 160 hectares (346 to 395 acres). Every year shows an increase of lands devoted to agriculture. The province of Buenos Ayres, which for so long a time neglected cereals, will soon have more fields sown in grain than all the rest of the Republic. Experience shows that the south is better adapted to growing cereals—the climate suits them better and during the years of the grasshopper invasion these regions were spared.

A railroad 300 kilometers (186 miles) long is now in process of construction, which, starting from the province of Buenos Ayres, will have its terminus at Rio Cuarto, in Cordoba. The preliminary studies for another line of equal length are being made. In other agricultural provinces, they are occupied with similar projects, all with the object of opening new fields to farming.

Stock raising is also destined to be a future source of wealth. The English have been among the first to see this, and have placed their capital to advantage. Nearly all the important works, railways, and large installations are of English initiative, besides insurance companies of every kind and land associations. Germany is gradually gaining ground with its colossal houses. By means of traveling agents, it sends its products to the most remote sections. These agents are the life of the great trade combinations. They furnish the information regarding the needs of every province. French capitalists are too timid and especially too ignorant of the needs of this Republic. The market of the world tends every day to become the property of colossal syndicates, which crush out the small merchants. Syndicates are the fashion with the English, Germans, and Americans, and it is by the consolidation of capital that they will defeat us, unless French capital combines in order to continue the exploitation of industries.

According to the Buenos Ayres Trade Journal, the value of the importation into the Argentine Republic in 1901 was figured at 113,959,749 gold pesos ($109,971,158), compared with 113,485,069 gold pesos ($109,513,092) in the preceding year. The export trade amounted to 167,716,102 gold pesos ($161,846,038), against 154,600,412 gold pesos ($149,189,398) in 1900. The following table shows the share of individual countries in this trade:

Country.	Imports.	Exports.
Great Britain	$35,184,865	$23,054,815
Germany	16,139,625	19,367,550
United States	14,990,310	6,642,095
Italy	14,220,240	4,153,360
France	9,611,400	18,342,720
Belgium	8,384,885	17,351,665
Brazil	4,232,490	5,969,490
Spain	3,776,045	2,604,535
Paraguay	1,706,120	156,330
Uruguay	655,235	2,222,395
Netherlands	552,945	3,769,290
Bolivia	134,135	558,735
Chile	107,115	839,550

Commerce of Cape Colony in 1901.—The Nachrichten für Handel und Industrie, of Berlin, under date of March 21, 1902, quotes the following statistics from the Government Gazette of the Cape of Good Hope:

The foreign trade of Cape Colony in the last three years was as follows:

Description.	1899.	1900.	1901.
Imports	$93,473,537	$95,764,622	$116,757,219
Exports	115,153,741	39,650,636	52,914,783

The most important articles of import in 1901 and 1900 were:

Article.	1901.	1900.
Toilet articles and fancy goods	$7,109,543	$6,194,578
Cotton goods	5,818,480	5,037,613
Provisions (groceries)	5,806,513	4,144,623
Hardware (cutlery)	4,394,347	3,752,227
Articles of clothing	4,367,552	3,476,608
Leather and leather goods, including shoes	4,238,264	3,380,899
Wheat	4,085,096	3,122,619
Raw sugar	2,954,486	2,454,930
Machines of all kinds	2,730,379	2,555,560
Cigars and manufactured tobacco	2,118,791	1,361,360
Meats, salted and prepared	1,923,319	1,605,157
Woolen goods	1,922,326	1,518,868
Spirituous liquors of all kinds	1,793,334	1,205,831
Coal and coke	1,788,925	1,705,840
Stationery and printing paper	1,699,323	1,357,340
Butter and margarin	1,655,637	1,043,490
Furniture and cabinet-making materials	1,440,080	1,162,281
Raw wood	1,426,653	793,320
Drugs and chemicals	1,426,454	1,124,351
Coffee	1,262,433	1,402,613
Maize	1,249,099	1,110,190
Cacao and chocolate	1,100,462	910,921
Ale and beer	1,080,017	782,168
Wagons and carts	885,649	516,594
Flour	818,300	749,611
Hats of all kinds	773,754	606,351
Printed books	718,836	559,171
Soap	698,727	637,361
Wine	680,035	422,232
Tea	672,025	581,434
Planed and prepared wood	664,667	584,282
Oats	592,190	535,636
Mineral oil	573,712	584,048
Jewelry, plated ware, and clocks	564,679	473,426
Refined sugar	505,834	250,094
Saddlery	550,994	414,305

The exports were:

Article.	1901.	1900.
Diamonds	$23,992,351	$16,710,743
Raw gold	5,965,837	1,639,013
Wool	5,566,376	2,621,004
Ostrich feathers	4,083,232	4,266,952
Copper ore	2,778,922	2,426,203
Angora hair	2,445,927	2,384,122
Washed wool	1,681,040	1,456,193
Sheep and goat skins	1,894,129	1,632,336
Wine	140,510	143,761
Hides	285,011	55,371

Trade of Dahomey in 1901.—A recent issue of La Dépêche Coloniale, Paris, has the following:

The foreign trade of Dahomey, including specie, for the last five years was:

Year.	Imports.	Exports.	Total.
1897	$1,590,891	$1,076,720	$2,667,611
1898	1,929,951	1,454,980	3,384,931
1899	2,383,351	2,454,996	4,838,347
1900	2,937,734	2,461,888	5,399,622
1901	3,040,261	2,022,431	5,062,692

The trade of 1901 was distributed, according to countries of origin, as follows:

Country.	Imports.	Exports.
France	$637,075	$773,213
French colonies	.....	659
Great Britain	513,634	119,374
Lagos	552,414	172,443
Germany	1,276,889	953,427
Togoland	.....	1,034
Other countries	60,249	2,281
Total	3,040,261	2,022,431

Germany ranks first in the import trade, sending principally beverages, textiles, and tobacco. The chief articles of import in 1901 reached the following values:

Article.	Value.	Article.	Value.
Hog lard	$3,775	Soap, scentless	$10,416
Butter	3,456	Earthenware	38,171
Rice	12,657	Glass and crystal	62,999
Sugar	35,336	Yarn	79,077
Tobacco	154,932	Textiles	611,645
Wood	46,090	Machinery and tools	67,473
Beverages	950,861	Blasting powder	44,554
Lime	2,270	Wood and manufactures of	81,063
Cement	17,054	Hides and skins	12,147
Metals	42,061	Mineral oil	20,582
Salt	52,118	Vegetable oils	9,465
Perfumery	17,199		

The export of the most important products was:

Article.	Value.	Article.	Value.
Palm kernels	$934,569	Kola nuts	$25,037
Palm oil	915,301	Rubber	5,684
Fish, dried and smoked	55,928	Copra	8,941
Ivory	1,325	Maize	65

The export of palm kernels surpassed that of the preceding year by 2,225.6 metric tons and the export of palm oil increased by 5,225,561 pounds. A diminution is shown in the export of copra of 35.2 tons and in the export of rubber of 30,831 pounds.

Trade of Queensland in 1901.—The Nachrichten für Handel und Industrie, Berlin, March 27, 1902, says:

The imports into Queensland reached in the year 1901 the value of $30,805,753, against $34,961,481 in the preceding year. The value of the exports of the colony amounted in 1901 to $44,119,460, compared with $46,628,671 in 1900. The chief articles of export were:

Article.	Value.	Article.	Value.
Gold	$12,385,043	Tallow	$1,037,669
Wool	10,263,779	Mother-of-pearl shells	582,968
Meat	6,279,493	Tin	555,321
Sugar	3,679,804	Fresh fruit	494,120
Hides and skins	2,040,674	Live animals	2,213,815

Trade of New Zealand in 1901.—According to the Nachrichten für Handel und Industrie, Berlin, March 21, 1902, the trade of New Zealand for the last four years has been:

Year.	Imports.	Exports.
1901	$54,648,235	$62,552,317
1900	49,247,398	64,276,284
1899	41,577,144	57,972,746
1898	39,683,105	50,845,946

These figures do not include specie or postal traffic.

The Glass-Bead Industry of Venice.—The Nachrichten für Handel und Industrie, Berlin, March 20, 1902, announces the consolidation of the fourteen manufactories of glass beads on the Island of Murano into one large factory, in order to check the lowering of prices by competition. The industry gives employment to 4,000 work people, who secure from this combination the advantages of better wages. The bead export from Venice, it is added, has suffered considerably from the troubles in China and South Africa, as well as through the change of fashion.

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PUBLICATIONS OF THE BUREAU OF FOREIGN COMMERCE.*

The publications of the Bureau of Foreign Commerce, Department of State, are:

I.—COMMERCIAL RELATIONS, being the annual reports of consular officers on the commerce, industries, navigation, etc., of their districts.

II.—CONSULAR REPORTS, issued monthly, and containing miscellaneous reports from diplomatic and consular officers.

III.—ADVANCE SHEETS, CONSULAR REPORTS, issued daily, except Sundays and legal holidays, for the convenience of the newspaper press, commercial and manufacturing organizations, etc.

IV.—EXPORTS DECLARED FOR THE UNITED STATES, issued quarterly, and containing the declared values of exports from the various consular districts to the United States for the preceding three months. There is also issued an annual edition of Declared Exports, embracing the returns for the fiscal year.

V.—SPECIAL CONSULAR REPORTS, containing series of reports from consular officers on particular subjects, made in pursuance to instructions from the Department.

Following are the special publications issued by the Bureau prior to 1890:

Labor in Europe, 1878, one volume; Labor in Foreign Countries, 1884, three volumes; Commerce of the World and the Share of the United States Therein, 1879; Commerce of the World and the Share of the United States Therein, 1880–81; Declared Exports for the United States, First and Second Quarters, 1883; Declared Exports for the United States, Third and Fourth Quarters, 1883; Cholera in Europe in 1884, 1885; Trade Guilds of Europe, 1885; The Licorice Plant, 1885; Forestry in Europe, 1887; Emigration and Immigration, 1885–86 (a portion of this work was published as CONSULAR REPORTS No. 76, for the month of April, 1887); Rice Pounding in Europe, 1887; Sugar of Milk, 1887; Wool Scouring in Belgium, 1887; Cattle and Dairy Farming in Foreign Countries, 1888 (issued first in one volume, afterwards in two volumes); Technical Education in Europe, 1888; Tariffs of Central America and the British West Indies, 1890.

The editions of all these publications except Tariffs in Central America, etc., are exhausted and the Department is, therefore, unable to supply copies.

In 1890, the Department decided to publish reports on special subjects in separate form, to be entitled SPECIAL CONSULAR REPORTS. There are now the following SPECIAL CONSULAR REPORTS:

Vol. 1 (1890).—Cotton Textiles in Foreign Countries, Files in Spanish America, Carpet Manufacture in Foreign Countries, Malt and Beer in Spanish America, and Fruit Culture in Foreign Countries.

Vol. 2 (1890 and 1891).—Refrigerators and Food Preservation in Foreign Countries, European Emigration, Olive Culture in the Alpes Maritimes, and Beet-Sugar Industry and Flax Cultivation in Foreign Countries.

Vol. 3 (1891).—Streets and Highways in Foreign Countries. (New edition, 1897.)

Vol. 4 (1891).—Port Regulations in Foreign Countries.

Vol. 5 (1891).—Canals and Irrigation in Foreign Countries. (New edition, 1898.)

Vol. 6 (1891 and 1892).—Coal and Coal Consumption in Spanish America, Gas in Foreign Countries, and India Rubber.

Vol. 7 (1892).—The Stave Trade in Foreign Countries and Tariffs of Foreign Countries.

Vol. 8 (1892).—Fire and Building Regulations in Foreign Countries.

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* Formerly Bureau of Statistics. Name changed to Bureau of Foreign Commerce by order of the Secretary of State, July 1, 1897.

Vol. 9 (1892 and 1893).—Australian Sheep and Wool and Vagrancy and Public Charities in Foreign Countries.

Vol. 10 (1894).—Lead and Zinc Mining in Foreign Countries and Extension of Markets for American Flour. (New edition, 1897.)

Vol. 11 (1894).—American Lumber in Foreign Markets. (New edition, 1897.)

Vol. 12 (1895).—Highways of Commerce. (New edition, 1899.)

Vol. 13 (1896 and 1897).—Money and Prices in Foreign Countries.

Vol. 14 (1898).—The Drug Trade in Foreign Countries.

Vol. 15 (1898).—Part I. Soap Trade in Foreign Countries; Screws, Nuts, and Bolts in Foreign Countries; Argols in Europe, Rabbits and Rabbit Furs in Europe, and Cultivation of Ramie in Foreign Countries. Part II. Sericulture and Silk Reeling and Cultivation of the English Walnut.

Vol. 16 (1899).—Tariffs of Foreign Countries. Part I. Europe. Part II. America. Part III. Asia, Africa, Australasia, and Polynesia. Supplement (1900). Tariffs of Chile and Nicaragua.

Vol. 17 (1899).—Disposal of Sewage and Garbage in Foreign Countries; Foreign Trade in Coal Tar and By-Products.

Vol. 18 (1900).—Merchant Marine of Foreign Countries.

Vol. 19 (1900).—Paper in Foreign Countries; Uses of Wood Pulp.

Vol. 20 (1900).—Part I. Book Cloth in Foreign Countries, Market for Ready-Made Clothing in Latin America, Foreign Imports of American Tobacco, and Cigar and Cigarette Industry in Latin America. Part II. School Gardens in Europe. Part III. The Stave Trade in Foreign Countries.

Vol. 21 (1900).—Part I. Foreign Markets for American Coal. Part II. Vehicle Industry in Europe. Part III. Trusts and Trade Combinations in Europe.

Vol. 22 (1900 and 1901).—Part I. Acetic Acid in Foreign Countries. Part II. Mineral-Water Industry. Part III. Foreign Trade in Heating and Cooking Stoves.

Vol. 23 (1901).—Part I. Gas and Oil Engines in Foreign Countries.

Of these SPECIAL CONSULAR REPORTS, Australian Sheep and Wool, Cotton Textiles in Foreign Countries, Files in Spanish America, Fire and Building Regulations, Fruit Culture, Gas in Foreign Countries, India Rubber, Lead and Zinc Mining, Malt and Beer in Spanish America, Port Regulations, Refrigerators and Food Preservation; Sericulture, etc.; Vagrancy, etc., are exhausted, and no copies can be supplied by the Department.

There was also published, in 1899, Proclamations and Decrees during the War with Spain, comprising neutrality circulars issued by foreign countries, proclamations by the President, orders of the War and Navy Departments, and war decrees of Spain.

Of the monthly CONSULAR REPORTS, many numbers are exhausted or so reduced that the Department is unable to accede to requests for copies. Of the publications of the Bureau available for distribution, copies are mailed to applicants without charge. In view of the scarcity of certain numbers, the Bureau will be grateful for the return of any copies of the monthly or special reports which recipients do not care to retain. Upon notification of willingness to return such copies, the Department will forward franking labels to be used in lieu of postage in the United States, Canada, the Hawaiian Islands, Porto Rico, and Mexico.

Persons receiving CONSULAR REPORTS regularly, who change their addresses, should give the old as well as the new address in notifying the Bureau of the fact.

In order to prevent confusion with other Department bureaus, all communications relating to consular reports should be carefully addressed, "Chief, Bureau of Foreign Commerce, Department of State, Washington, U. S. A."

VALUES OF FOREIGN COINS AND CURRENCIES.

The following statements show the valuation of foreign coins, as given by the Director of the United States Mint and published by the Secretary of the Treasury, in compliance with the first section of the act of March 3, 1873, viz: "That the value of foreign coins, as expressed in the money of account of the United States, shall be that of the pure metal of such coin of standard value," and that "the value of the standard coins in circulation of the various nations of the world shall be estimated annually by the Director of the Mint, and be proclaimed on the 1st day of January by the Secretary of the Treasury."

In compliance with the foregoing provisions of law, annual statements were issued by the Treasury Department, beginning with that issued on January 1, 1874, and ending with that issued on January 1, 1890. Since that date, in compliance with the act of October 1, 1890, these valuation statements have been issued quarterly, beginning with the statement issued on January 1, 1891.

The fact that the market exchange value of foreign coins differs in many instances from that given by the United States Treasury has been repeatedly called to the attention of the Bureau of Foreign Commerce. An explanation of the basis of the quarterly valuations was asked from the United States Director of the Mint, and under date of February 7, 1898, Mr. R. E. Preston made the following statement:

"When a country has the single gold standard, the value of its standard coins is estimated to be that of the number of grains fine of gold in them, 480 grains being reckoned equivalent to $20.67 in United States gold, and a smaller number of grains in proportion. When a country has the double standard, but keeps its full legal-tender silver coins at par with gold, the coins of both gold and silver are calculated on the basis of the gold value.

"The value of the standard coins of countries with the single silver standard is calculated to be that of the average market value of the pure metal they contained during the three months preceding the date of the proclamation of their value in United States gold by the Secretary of the Treasury. The value of the gold coins of silver-standard countries is calculated at that of the pure gold they contain, just as if they had the single gold standard.

"These valuations are used in estimating the values of all foreign merchandise exported to the United States."

The following statements, running from January 1, 1874, to April 1, 1902, have been prepared to assist in computing the values in American money of the trade, prices, values, wages, etc., of and in foreign countries, as given in consular and other reports. The series of years are given so that computations may be made for each year in the proper money values of such year. In hurried computations, the reductions of foreign currencies into American currency, no matter for how many years, are too often made on the bases of latest valuations. All computations of values, trade, wages, prices, etc., of and in the "fluctuating-currency countries" should be made in the values of their currencies in each year up to and including 1898, and in the quarterly valuations thereafter.

To meet typographical requirements, the quotations for the years 1875–1877, 1879–1882, 1884–1887, 1895, and 1897 are omitted, these years being selected as showing the least fluctuations when compared with years immediately preceding and following.

To save unnecessary repetition, the estimates of valuations are divided into three classes, viz: (A) countries with fixed currencies, (B) countries with fluctuating currencies, and (C) quarterly valuations of fluctuating currencies.

A.—*Countries with fixed currencies.*

The following official (United States Treasury) valuations of foreign coins do not include "rates of exchange."

Countries.	Standard.	Monetary unit.	Value in U.S. gold.	Coins.
Argentine Republic..	Gold and silver..	Peso.....	$0.96,5	Gold—argentine ($4.82,4) and ½ argentine; silver—peso and divisions.
Austria-Hungary*.....	Gold	Crown.....	.20,3	Gold—20 crowns ($4.05,2) and 10 crowns.
Belgium.....	Gold and silver..	Franc	.19,3	Gold—10 and 20 franc pieces; silver—5 francs.
Brazil	Gold	Milreis	.54,6	Gold—5, 10, and 20 milreis; silver—½, 1, and 2 milreis.
British North America (except Newfoundland).	.....do	Dollar.....	1.00	
British Honduras.....	.....do	.....do	1.00	
Chile.....	.....do	Peso.....	.36,5	Gold—escudo ($1.25), doubloon ($3.65), and condor ($7.30); silver—peso and divisions.
Costa Rica.....	.....do	Colon.....	.46,5	Gold—2, 5, 10, and 20 colons; silver—5, 10, 25, and 50 centisimos.
Cuba	Gold and silver..	Peso.....	.92,6	Gold—doubloon ($5.01,7); silver—peso (60 cents).
Denmark.....	Gold	Crown.....	.26,8	Gold—10 and 20 crowns.
Ecuador†	.....do	Sucre.....	.48,7	Gold—10 sucres ($4.8665); silver—sucre and divisions.
Egypt.....	.....do	Pound (100 piasters).	4.94,3	Gold—10, 20, 50, and 100 piasters; silver—1, 2, 10, and 20 piasters.
Finland	.....do	Mark.....	.19,3	Gold—10 and 20 marks ($1.93 and $3.85,9).
France	Gold and silver..	Franc	.19,3	Gold—5, 10, 20, 50, and 100 francs; silver—5 francs.
Germany	Gold	Mark.....	.23,8	Gold—5, 10, and 20 marks.
Great Britain.....	.....do	Pound sterling.	4.86,6½	Gold—sovereign (pound sterling) and half sovereign.
Greece	Gold and silver..	Drachma.....	.19,3	Gold—5, 10, 20, 50, and 100 drachmas; silver—5 drachmas.
Haiti	.....do	Gourde.....	.96,5	Silver—gourde.
India‡.....	Gold	Rupee	.32,4	Gold—sovereign ($4.8665); silver—rupee and divisions.
Italy	Gold and silver..	Lira	.19,3	Gold—5, 10, 20, 50, and 100 lire; silver—5 lire.
Japan §.....	Gold	Yen	.49,8	Gold—1, 2, 5, 10, and 20 yen.
Liberia	.....do	Dollar.....	1.00	
Netherlands.....	Gold and silver..	Florin	.40,2	Gold—10 florins; silver—½, 1, and 2½ florins.
Newfoundland	Gold	Dollar.....	1.01,4	Gold—$2 ($2.02,7).
Peru‖.....	.....do	Sol	.48,7	Gold—libra ($4.8665); silver—sol and divisions.
Portugal	.....do	Milreis	1.08	Gold—1, 2, 5, and 10 milreis.
Russia¶.....	.....do	Ruble	.51,5	Gold—imperial ($7.718) and ½ imperial ($3.80); silver—¼, ½, and 1 ruble.
Spain.....	Gold and silver..	Peseta.....	.19,3	Gold—25 pesetas; silver—5 pesetas.
Sweden and Norway..	Gold	Crown.....	.26,8	Gold—10 and 20 crowns.
Switzerland	Gold and silver..	Franc	.19,3	Gold—5, 10, 20, 50, and 100 francs; silver—5 francs.
Turkey	Gold	Piaster	.04,4	Gold—25, 50, 100, 200, and 500 piasters.
Uruguay	.....do	Peso.....	1.03,4	Gold—peso; silver—peso and divisions.
Venezuela.....	Gold and silver..	Bolivar.....	.19,3	Gold—5, 10, 20, 50, and 100 bolivars; silver—5 bolivars.

*The gold standard went into effect January 1, 1900 (see Commercial Relations, 1899, Vol. II, p. 7). Values are still sometimes expressed in the florin, which is worth 2 crowns.

† Gold standard adopted in November, 1900. (See Consular Reports No. 225, June, 1899.)

‡ For an account of the adoption of the gold standard, see Consular Reports No. 238, p. 359.

§ Gold standard adopted October 1, 1897. (See Consular Reports No. 201, p. 259.)

‖ Gold standard adopted October 13, 1900.

¶ For an account of the adoption of the gold standard, see Review of the World's Commerce, 1896–97, p. 254.

B.—*Countries with fluctuating currencies, 1874–1898.*

Countries.	Standard.	Monetary unit.	Value in terms of the United States gold dollar on January 1—					
			1874.	1878.	1883.	1888.	1889.	1890.
Austria-Hungary*.	Silver	Florin	$0.47,6	$0.45,3	$0.40,1	$0.34,5	$0.33,6	$0.42
Bolivia	do	Dollar until 1880; boliviano thereafter.	.96,5	.96,5	.81,2	.69,9	.68	.85
Central America	do	Peso	.96,5	.91,8		.69,9	.68	.85
China	do	Haikwan tael	1.61					
Colombia	do	Peso	.96,5	.96,5	.81,2	.69,9	.68	.85
Ecuador	do	do	.96,5	.91,8	.81,2	.69,9	.68	.85
Egypt†	Gold	Pound (100 piasters).		4.97,4	4.90	4.94,3		
India	Silver	Rupee	.45,8	.43,6	.38,6	.32,2	.32,3	.40,4
Japan	Gold	Yen	.99,7	.99,7		.99,7	.99,7	.99,7
	Silver				.87,6	.75,3	.73,4	.91,7
Mexico	do	Dollar	1.04,7½	.99,8	.88,2	.75,9	.73,9	.92,3
Netherlands‡	Gold and Silver.	Florin	.40,5	.38,5				
Peru	Silver	Sol	.92,5	.91,8	.81,2	.69,9	.68	.85
Russia	do	Ruble	.77,17	.73,4	.65	.55,9	.54,4	.68
Tripoli	do	Mahbub of 20 piasters.	.87,09	.82,9	.73,3	.63	.61,4	.76,7

Countries.	Standard.	Monetary unit.	Value in terms of the United States gold dollar on January 1—					
			1891.	1892.	1893.	1894.	1896.	1898.
Austria-Hungary*.	Silver	Florin	$0.38,1	$0.34,1				
Bolivia	do	Boliviano	.77,1	.69,1	$0.61,3	$0.51,6	$0.49,1	$0.42,4
Central America	do	Peso	.77,1	.69,1	.61,3	.51,6	.49,1	.41,4
Colombia	do	do	.77,1	.69,1	.61,3	.51,6	.49,1	.42,4
Ecuador	do	do	.77,1	.69,1	.61,3	.51,6	.49,1	.42,4
India	do	Rupee	.36,6	.32,8	.29,2	.24,5	.23,3	.20,1
Japan§	do	Yen	.83,1	.74,5	.66,1	.55,6	.52,9	
Mexico	do	Dollar	.83,7	.75	.66,6	.56	.53,3	.46
Peru	do	Sol	.77,1	.69,1	.61,3	.51,6	.49,1	.42,4
Russia§	do	Ruble	.61,7	.55,3	.49,1	.41,3	.39,3	
Tripoli	do	Mahbub of 20 piasters.	.69,5	.62,3	.55,3	.46,5	.44,3	

*The silver standard prevailed in Austria-Hungary up to 1892. The law of August 2 of that year (see CONSULAR REPORTS No. 147, p. 623) established the gold standard.

†The Egyptian pound became fixed in value at $4.94,3 in 1887.

‡The Netherlands florin fluctuated up to the year 1880, when it became fixed at 40.2 cents.

§See footnote, table of fixed currencies.

C.—*Quarterly valuations of fluctuating currencies.*

Countries.	Monetary unit.	1899. Jan. 1.	1899. April 1.	1899. July 1.	1899. Oct. 1.	1900. Jan. 1.	1900. April 1.	1900. July 1.	1900. Oct. 1.
Bolivia	Silver boliviano.	$0.43,9	$0.43,4	$0.44,3	$0.43,6	$0.42,7	$0.43,6	$0.43,8	$0.45,1
Central America.	Silver peso	.43,9	.43,4	.44,3	.43,6	.42,7	.43,6	.43,8	.45,1
China	Amoy tael	.71	.70,2	.71,6	.70,5	.69,1	.70,5	.70,9	.72,9
	Canton tael	.70,8	.70	.71,4	.70,3	.68,9	.70,3	.70,7	.72,7
	Chefoo tael	.67,9	.67,2	.68,4	.67,4	.66,1	.67,4	.67,8	.69,7
	Chinkiang tael	.69,3	.68,6	.69,9	.68,9	.67,5	.68,8	.69,3	.71,2
	Fuchau tael	.65,6	.65	.66,2	.65,2	.64	.65,2	.65,6	.67,4
	Haikwan tael	.72,2	.71,4	.72,8	.71,8	.70,3	.71,7	.72,1	.74,2
	Hankau tael	.66,4	.65,7	.67	.66	.64,7	.65,9	.66,3	.68,2
	Hongkong tael	(*)	(*)	(*)	(*)	(*)	(*)	(*)	(*)
	Ningpo tael	.68,2	.67,5	.68,8	.67,8	.66,5	.67,7	.68,2	.70,1
	Niuchwang tael	.66,5	.65,9	.67,1	.66,1	.64,8	.66,1	.66,5	.68,4
	Shanghai tael	.64,8	.64,1	.65,4	.64,4	.63,1	.64,4	.64,8	.66,6
	Swatow tael	.65,5	.64,9	.66,1	.65,1	.63,9	.65,1	.65,5	.67,4
	Takao tael	.71,4	.70,7	.72	.71	.69,6	.70,9	.71,4	.73,4
	Tientsin tael	.68,8	.68	.69,4	.68,3	.67	.68,3	.68,7	.70,7
Colombia	Silver peso	.43,9	.43,4	.44,3	.43,6	.42,7	.43,6	.43,8	.45,1
Ecuador †	do	.43,9	.43,4	.44,3	.43,6				
India	Silver rupee‡	.20,8	.20,6	.21	.20,7	.20,3	.20,7	.20,8	
Mexico	Silver dollar	.47,7	.47,2	.48,1	.47,4	.46,4	.47,3	.47,6	.49
Persia	Silver kran	.08,1	.08	.08,2	.08	.07,9	.08	.08,1	.08,3
Peru †	Silver sol	.43,9	.43,4	.44,3	.43,6	.42,7	.43,6	.43,8	.48,7

Countries.	Monetary unit.	1901. Jan. 1.	1901. April 1.	1901. July 1.	1901. Oct. 1.	1902. Jan. 1.	1902. April 1.
Bolivia	Silver boliviano.	$0.46,8	$0.45,1	$0.43,6	$0.42,8	$0.41,3	$0.40,3
Central America	Silver peso	.46,5	.45,1	.43,6	.42,8	.41,3	.40,3
China	Amoy tael	.75,7	.72,9	.70,5	.69,1	.66,9	.65,1
	Canton tael	.75,5	.72,7	.70,3	.68,9	.66,7	.64,9
	Chefoo tael	.72,4	.69,7	.67,4	.66,1	.63,9	.62,3
	Chinkiang tael	.74	.71,2	.68,8	.67,5	.65,3	.63,6
	Fuchau tael	.70,1	.67,5	.65,2	.64	.61,8	.60,2
	Haikwan tael	.77,1	.74,2	.71,7	.70,4	.68	.66,3
	Hankau tael	.70,9	.68,2	.65,9	.64,7	.62,6	.60,9
	Hongkong tael	(*)	(*)	(*)	(*)	(*)	(*)
	Ningpo tael	.72,8	.70,1	.67,8	.66,5	.64,3	.62,6
	Niuchwang tael	.71	.68,4	.66,1	.64,8	.62,7	.61,1
	Shanghai tael	.69,2	.66,6	.64,4	.63,2	.61,1	.59,5
	Swatow tael	.70	.67,4	.65,1	.63,9	.61,8	.60,2
	Takao tael	.76,2	.73,4	.70,9	.69,6	.67,3	.65,5
	Tientsin tael	.73,4	.70,7	.68,3	.67	.64,8	.63,1
Colombia	Silver peso	.46,8	.45,1	.43,6	.42,8	.41,3	.40,3
Mexico	Silver dollar	.50,9	.49	.49	.46,4	.44,9	.43,7
Persia	Silver kran	.08,6	.08,3	.08,3	.07,9	.07,6	.07,4

* The "British dollar" has the same legal value as the Mexican dollar in Hongkong, the Straits Settlements, and Labuan.

† See footnote, table of fixed currencies.

‡ The sovereign is the standard coin of India, but the rupee is the money of account. See also table of fixed currencies.

FOREIGN WEIGHTS AND MEASURES.

The following table embraces only such weights and measures as are given from time to time in CONSULAR REPORTS and in Commercial Relations:

Foreign weights and measures, with American equivalents.

Denominations.	Where used.	American equivalents.
Almude	Portugal	4.422 gallons.
Ardeb	Egypt	7.6907 bushels.
Are	Metric	0.02471 acre.
Arobe	Paraguay	25 pounds.
Arratel or libra	Portugal	1.011 pounds.
Arroba (dry)	Argentine Republic	25.3175 pounds.
Do	Brazil	32.38 pounds.
Do	Cuba	25.3664 pounds.
Do	Portugal	32.38 pounds.
Do	Spain	25.36 pounds.
Do	Venezuela	25.4024 pounds.
Arroba (liquid)	Cuba, Spain, and Venezuela	4.263 gallons.
Arshine	Russia	28 inches.
Arshine (square)	do	5.44 square feet.
Artel	Morocco	1.12 pounds.
Baril	Argentine Republic and Mexico	20.0787 gallons.
Barrel	Malta (customs)	11.4 gallons.
Do	Spain (raisins)	100 pounds.
Berkovets	Russia	361.12 pounds.
Bongkal	India	832 grains.
Bouw	Sumatra	7,096.5 square meters.
Bu	Japan	0.1 inch.
Butt (wine)	Spain	140 gallons.
Caffiso	Malta	5.4 gallons.
Candy	India (Bombay)	529 pounds.
Do	India (Madras)	500 pounds.
Cantar	Morocco	113 pounds.
Do	Syria (Damascus)	575 pounds.
Do	Turkey	124.7036 pounds.
Cantaro (cantar)	Malta	175 pounds.
Carga	Mexico and Salvador	300 pounds.
Catty	China	1.333⅓ (1⅓) pounds.
Do*	Japan	1.31 pounds.
Do	Java, Siam, and Malacca	1.35 pounds.
Do	Sumatra	2.12 pounds.
Centaro	Central America	4.2631 gallons.
Centner	Bremen and Brunswick	117.5 pounds.
Do	Darmstadt	110.24 pounds.
Do	Denmark and Norway	110.11 pounds.
Do	Nuremberg	112.43 pounds.
Do	Prussia	113.44 pounds.
Do	Sweden	93.7 pounds.
Do	Vienna	123.5 pounds.
Do	Zollverein	110.24 pounds.
Do	Double or metric	220.46 pounds.
Chetvert	Russia	5.7748 bushels.
Chih	China	14 inches.

*More frequently called "kin." Among merchants in the treaty ports it equals 1.33⅓ pounds avoirdupois.

Foreign weights and measures, with American equivalents—Continued.

Denominations.	Where used.	American equivalents.
Coyan	Sarawak	3,098 pounds.
Do	Siam (Koyan)	2,667 pounds.
Cuadra	Argentine Republic	4.2 acres.
Do	Paraguay	78.9 yards.
Do	Paraguay (square)	8.077 square feet.
Do	Uruguay	Nearly 2 acres.
Cubic meter	Metric	35.3 cubic feet.
Cwt. (hundredweight)	British	112 pounds.
Dessiatine	Russia	2.6997 acres.
Do	Spain	1.599 bushels.
Drachme	Greece	Half ounce.
Egyptian weights and measures	(*See* CONSULAR REPORTS No. 144.)	
Fanega (dry)	Central America	1.5745 bushels.
Do	Chile	2.575 bushels.
Do	Cuba	1.599 bushels.
Do	Mexico	1.54728 bushels.
Do	Morocco	Strike fanega, 70 lbs.; full fanega, 118 lbs.
Do	Uruguay (double)	7.776 bushels.
Do	Uruguay (single)	3.888 bushels.
Do	Venezuela	1.599 bushels.
Fanega (liquid)	Spain	16 gallons.
Feddan	Egypt	1.03 acres.
Frail (raisins)	Spain	50 pounds.
Frasco	Argentine Republic	2.5096 quarts.
Do	Mexico	2.5 quarts.
Frasila	Zanzibar	35 pounds.
Fuder	Luxemburg	264.17 gallons.
Funt	Russia	0.9028 pound.
Garnice	Russian Poland	0.88 gallon.
Gram	Metric	15.432 grains.
Hectare	do	2.471 acres.
Hectoliter:		
Dry	do	2.838 bushels.
Liquid	do	26.417 gallons.
Joch	Austria-Hungary	1.422 acres.
Ken	Japan	6 feet.
Kilogram (kilo)	Metric	2.2046 pounds.
Kilometer	do	0.621376 mile.
Klafter	Russia	216 cubic feet.
Koku	Japan	4.9629 bushels.
Korree	Russia	3.5 bushels.
Kwan	Japan	8.28 pounds.
Last	Belgium and Holland	85.134 bushels.
Do	England (dry malt)	82.52 bushels.
Do	Germany	2 metric tons (4,480 pounds).
Do	Prussia	112.29 bushels.
Do	Russian Poland	11 1/3 bushels.
Do	Spain (salt)	4,760 pounds.
League (land)	Paraguay	4,633 acres.
Li	China	2,115 feet.
Libra (pound)	Argentine Republic	1.0127 pounds.
Do	Central America	1.043 pounds.
Do	Chile	1.014 pounds.
Do	Cuba	1.0161 pounds.
Do	Mexico	1.01465 pounds.
Do	Peru	1.0143 pounds.
Do	Portugal	1.011 pounds.
Do	Spain	1.0144 pounds.
Do	Uruguay	1.0143 pounds.
Do	Venezuela	1.0161 pounds.

Foreign weights and measures, with American equivalents—Continued.

Denominations.	Where used.	American equivalents.
Liter	Metric	1.0567 quarts.
Livre (pound)	Greece	1.1 pounds.
Do	Guiana	1.0791 pounds.
Load	England (timber)	Square, 50 cubic feet; unhewn, 40 cubic feet; inch planks, 600 superficial feet.
Manzana	Costa Rica	1¾ acres.
Do	Nicaragua and Salvador	1.727 acres.
Marc	Bolivia	0.507 pound.
Maund	India	82⅔ pounds.
Meter	Metric	39.37 inches.
Mil	Denmark	4.68 miles.
Do	Denmark (geographical)	4.61 miles.
Milla	Nicaragua and Honduras	1.1493 miles.
Morgen	Prussia	0.63 acre.
Oke	Egypt	2.7225 pounds.
Do	Greece	2.84 pounds.
Do	Hungary	3.0817 pounds.
Do	Turkey	2.82838 pounds.
Do	Hungary and Wallachia	2.5 pints.
Pic	Egypt	21¼ inches.
Picul	Borneo and Celebes	135.64 pounds.
Do	China, Japan, and Sumatra	133⅓ pounds.
Do	Java	135.1 pounds.
Do	Philippine Islands	137.9 pounds.
Pie	Argentine Republic	0.9478 foot.
Do	Spain	0.91407 foot.
Pik	Turkey	27.9 inches.
Pood	Russia	36.112 pounds.
Pund (pound)	Denmark and Sweden	1.102 pounds.
Quarter	Great Britain	8.252 bushels.
Do	London (coal)	36 bushels.
Quintal	Argentine Republic	101.42 pounds.
Do	Brazil	130.06 pounds.
Do	Castile,* Chile, Mexico, and Peru	101.41 pounds.
Do	Greece	123.2 pounds.
Do	Newfoundland (fish)	112 pounds.
Do	Paraguay	100 pounds.
Do	Syria	125 pounds.
Do	Metric	220.46 pounds.
Rottle	Palestine	6 pounds.
Do	Syria	5¼ pounds.
Sagene	Russia	7 feet.
Salm	Malta	490 pounds.
Se	Japan	0.02451 acres.
Seer	India	1 pound 13 ounces.
Shaku	Japan	11.9305 inches.
Sho	do	1.6 quarts.
Standard (St. Petersburg)	Lumber measure	165 cubic feet.
Stone	British	14 pounds.
Suerte	Uruguay	2,700 cuadras (see cuadra).
Sun	Japan	1.193 inches.
Tael	Cochin China	590.75 grains (troy).
Tan	Japan	0.25 acre.
To	do	2 pecks.
Ton	Space measure	40 cubic feet.
Tonde (cereals)	Denmark	3.94783 bushels.
Tondeland	do	1.36 acres.

*Although the metric weights are used officially in Spain, the Castile quintal is employed in commerce in the Peninsula and colonies, save in Catalonia; the Catalan quintal equals 91.71 pounds.

Foreign weights and measures, with American equivalents—Continued.

Denominations.	Where used.	American equivalents.
Tsubo	Japan	6 feet square.
Tsun	China	1.41 inches.
Tunna	Sweden	4.5 bushels.
Tunnland	Sweden	1.22 acres.
Vara	Argentine Republic	34.1208 inches.
Do	Central America	32.87 inches.
Do	Chile and Peru	33.367 inches.
Do	Cuba	33.384 inches.
Do	Curaçao	33.375 inches.
Do	Mexico	33 inches.
Do	Paraguay	34 inches.
Do	Spain	0.914117 yard.
Do	Venezuela	33.384 inches.
Vedro	Russia	2.707 gallons.
Vergees	Isle of Jersey	71.1 square rods.
Verst	Russia	0.663 mile.
Vlocka	Russian Poland	41.98 acres.

METRIC WEIGHTS AND MEASURES.

Metric weights.

Milligram ($\frac{1}{1000}$ gram) equals 0.0154 grain.
Centigram ($\frac{1}{100}$ gram) equals 0.1543 grain.
Decigram ($\frac{1}{10}$ gram) equals 1.5432 grains.
Gram equals 15.432 grains.
Decagram (10 grams) equals 0.3527 ounce.
Hectogram (100 grams) equals 3.5274 ounces.
Kilogram (1,000 grams) equals 2.2046 pounds.
Myriagram (10,000 grams) equals 22.046 pounds.
Quintal (100,000 grams) equals 220.46 pounds.
Millier or tonnea—ton (1,000,000 grams) equals 2,204.6 pounds.

Metric dry measures.

Milliliter ($\frac{1}{1000}$ liter) equals 0.061 cubic inch.
Centiliter ($\frac{1}{100}$ liter) equals 0.6102 cubic inch.
Deciliter ($\frac{1}{10}$ liter) equals 6.1022 cubic inches.
Liter equals 0.908 quart.
Decaliter (10 liters) equals 9.08 quarts.
Hectoliter (100 liters) equals 2.838 bushels.
Kiloliter (1,000 liters) equals 1.308 cubic yards.

Metric liquid measures.

Milliliter ($\frac{1}{1000}$ liter) equals 0.0388 fluid ounce.
Centiliter ($\frac{1}{100}$ liter) equals 0.338 fluid ounce.
Deciliter ($\frac{1}{10}$ liter) equals 0.845 gill.
Liter equals 1.0567 quarts.
Decaliter (10 liters) equals 2.6418 gallons.
Hectoliter (100 liters) equals 26.417 gallons.
Kiloliter (1,000 liters) equals 264.18 gallons.

Metric measures of length.

Millimeter ($\frac{1}{1000}$ meter) equals 0.0394 inch.
Centimeter ($\frac{1}{100}$ meter) equals 0.3937 inch.
Decimeter ($\frac{1}{10}$ meter) equals 3.937 inches.

Meter equals 39.37 inches.
Decameter (10 meters) equals 393.7 inches.
Hectometer (100 meters) equals 328 feet 1 inch.
Kilometer (1,000 meters) equals 0.62137 mile (3,280 feet 10 inches).
Myriameter (10,000 meters) equals 6.2137 miles.

Metric surface measures.

Centare (1 square meter) equals 1,550 square inches.
Are (100 square meters) equals 119.6 square yards.
Hectare (10,000 square meters) equals 2.471 acre.

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MUNICIPAL SOCIALISM IN GREAT BRITAIN.

For some years past, there has been a quiet but gradually increasing development of a certain phase of socialism in Great Britain. Reference is made to what is generally known as "municipal trading" and sometimes, and more correctly, as "municipal socialism." The first appellation is rather a misnomer at the existing stage of the movement. Municipal socialism does not mean a division of private wealth or property "share and share alike," but the ownership and operation of certain undertakings and enterprises (in America generally described as "public utilities") by the municipality for the public good, as claimed. As generally explained, the enterprises within the proper sphere of municipal socialism are "public necessities." But here arises the question, Where is the line to be drawn? This line is by the great majority of advocates of the system drawn at those enterprises and undertakings which by their very nature are essentially public or semipublic in their functions, and which are of necessity more or less monopolies—as, for instance, street railways, waterworks, gas lighting, electric lighting, and electric power. Incidentally, it may be mentioned that the domain of "national socialism" has been entered into by the British Government by its ownership of the telegraph system and by its proposed gradual absorption of the telephone system; and a movement has sprung up for the nationalization of the railroads, and even of the coal supply, as well as of storage of wheat for use in case of war.

In 1875, the capital invested in municipal undertakings in Great Britain was $465,000,000, while in 1900 there were $1,500,000,000 invested.

There are now in Great Britain 931 municipalities owning waterworks, 99 owning the street railroads (or "tramways," as they are called here), 240 owning the gas works, and 181 supplying electricity. Most of these are in England. Municipalities were not allowed to work the tramways until 1896. It is estimated that half of the gas users in England use municipal gas. In a number of places—Liverpool among them—the municipalities supply electricity for lighting and power, while the gas supply is still in the hands of private corporations. In the case of Liverpool, the gas company is quite willing to sell to the municipality, but the latter will not buy: first, because under the charter of the gas company the municipality would be compelled to pay a perpetual dividend of 10 per cent to the stockholders, and, second, because it is believed that in the near future electricity will practically supersede gas as an illuminant.

The municipalities of Leamington and Harrogate own Turkish baths, two of the best at present existing in Great Britain, and Harrogate also gives fireworks displays at municipal cost. Glasgow, like Liverpool, owns its waterworks and trams, and provides municipal lectures. Glasgow has quite recently reduced the fares on the tram cars, so that there are now not only half-penny (1-cent) fares, but a distance of 2½ miles can be traveled for 2 cents. Universal penny (2-cent) fares will probably shortly be introduced in Liverpool. The "transfer" system, as prevailing in America, is not used in Liverpool, nor in any other British municipality, so far as I know. Glasgow was the first city to establish a "municipal palace." Manchester owns shares in its ship canal. Out of its municipal tramway profits, Sheffield has appropriated $75,000 for the erection of shops and business premises, which it will rent. Quite recently, the northern townships outside of London bought the well-known Alexandra Palace, where the municipal authorities maintain an auditorium and give organ recitals and theatrical, military-band, and variety entertainments of all sorts, and industrial exhibitions. Torquay owns a rabbit warren; Colchester possesses an oyster fishery; St. Helen's (a chemical center in this consular district) supplies sterilized milk; Hull owns a crematorium; Doncaster and Chester own race courses (the former actually managing the races); Bournemouth owns one of the finest golf courses in Great Britain; West Ham, a borough of London, owns a stone-flag factory; and Bradford owns a hotel—as also does Liverpool (on its waterworks property in Wales). Bristol has municipalized its docks and harbor, at a cost of between $10,000,000 and $15,000,000. The docks of Liverpool are municipalized in a modified way. The system is peculiar to Liverpool. This vast estate, valued at several hundreds of millions of dollars, is administered by a public trust, nearly all the

members of which are elected by those who pay dock dues, and the profits, after deducting expenses and payment of interest on capital account, go to improvement, and not to the benefit of a private corporation. The probability is that the London docks will before many years be managed under either the Bristol or the Liverpool plan. Nottingham, in addition to owning parks, markets, artisan dwellings, baths, and a hospital, has bought a castle and a forest, and has a natural-history museum and a school of art, and was the first municipality in Great Britain to have a university college. The last item gives occasion for the statement that several English cities have within the last year or so taken up the question of local universities. Birmingham has established one, and Liverpool will shortly follow suit.

Liverpool is one of the foremost cities in municipal socialism. It owns the waterworks (one of the best systems in the world); it operates the street cars; it supplies the electric light and power; it has one of the largest and best public-bath systems anywhere and proposes to erect the finest Turkish bath in Europe; it provides public laundries for the poor districts; it furnishes flowers and plants for the windows in the slums; it sells sterilized humanized milk for the children of the poor at cost price; it has a salaried organist to play its famous municipal organ; it gives municipal lectures—and all these in addition to the usual undertakings of municipalities, such as parks with concerts, technical schools, etc. But the greatest socialistic undertaking by the Liverpool municipality is that of providing dwellings for the very poor, the dispossessed tenants of demolished insanitary dwellings of the slums.

The one great predominating question in connection with municipal socialism is the "housing question"—that is, the demolition of "slums" and insanitary dwellings and the erection by the municipality of suitable dwellings in place thereof. Americans who have never been here can have but little conception of the terrible conditions existing in many of the large cities of Great Britain as to the housing of the very poor. This condition is a heritage of former social and economic conditions, as well as of feudal land laws, and of the past indifference both of the municipalities and of Parliament, as well as of the public generally—even, it may be said, of philanthropists. But heroic efforts are now being made in many of the large cities, and Liverpool is in the front rank in the efforts to remedy this deplorable condition of affairs. Many difficulties have been confronted and overcome which at first were thought to be insurmountable—and these in addition to the perplexing moral and social questions involved. One great difficulty is that of compensation to the owners of insanitary property. In England, the doctrine

of "vested rights" is generally held very tenaciously. London has spent nearly $15,000,000 in clearing away insanitary property. In some districts of London, it has cost from $1,500 to $2,500 for every family turned out. These large sums refer only to the clearances of the slums and to the compensation of the landlords, and do not include the amounts spent on the construction of new municipal houses. An agitation is being raised against the past generous compensation of owners of insanitary property, and it is claimed that under the present act of Parliament these owners can be prosecuted for allowing their property to become insanitary.

Another great difficulty has been the question of providing an adequate number of suitable municipal dwellings ready for occupancy at the same time that the unfortunate dwellers of the slum houses are dispossessed of their tenancy. Inattention to this necessity has called forth indignant protests in the large cities of Great Britain where the municipal scheme has been adopted as a solution of the slum problem. Glasgow, for instance, is said to have had at one time 50,000 people turned out of their homes by the corporation (of course, not all together), while it only provided housing accommodation for 7,000. In the initial stages of the municipal-housing scheme in Liverpool, the same difficulty presented itself, but the "housing committee" of the corporation have recently pledged themselves that they will not undertake any scheme of demolition until they have provided adequate accommodation elsewhere for the dispossessed tenants. Under the present act, municipalities are compelled to provide substitute accommodation for at least 50 per cent of the dispossessed occupiers of slum property. The act under which municipalities demolish insanitary areas and erect dwelling houses seems to be of a most comprehensive character. It not only authorizes a municipality to construct a house, but it "may include a garden of not more than half an acre, provided that the estimated annual value of such garden shall not exceed £3" (say $15). And the municipality, if it builds a cottage, can "fit up, furnish, and supply the same with all requisite furniture, fittings, and conveniences."

There are two principal slum areas in Liverpool—one in the north end of about 383 acres and another at the south end of the city of about 100 acres. Most of the houses in these two districts are structurally insanitary. There are rows of them built "back to back." There are other districts where houses have been made insanitary by overcrowding and the habits of the people. The original number of structurally insanitary houses, when the corporation commenced operations, is estimated to have been about 22,000. Of this number, the corporation has demolished about 8,000 and private owners and builders have demolished about 4,000 more. There are

still about 10,000 insanitary houses to be dealt with. The average number of persons in these insanitary houses is five per house. Slum houses in Liverpool are generally of three rooms, one above another, although, as a rule, the third or upper room (really a garret) is seldom used. Under an act applicable to Liverpool, passed in 1864, compensation is paid to owners of insanitary property which is demolished, such property having been condemned on a presentment of the grand jury upon a report of the medical officer of health. The corporation is also using the powers conferred upon it by a general act passed in 1890 providing for the "housing of the working classes." This act provides for compensation as a rule; but still, under a certain provision of the act, there can be a "closing order" against any house which is in a state so dangerous or injurious to health as to render it unfit for human habitation. If, on receipt of a closing order, the owner makes the house fit for human habitation, nothing more is done; but should there be any default on his part, an order for demolition may issue without any claim for compensation, in case the premises are a danger to the health of the neighborhood. Under both the local act of 1864 and the general act of 1890, where the owner does not elect to retain the site, the corporation must of necessity acquire both land and buildings. In some cases, the land thus acquired is sold by the corporation to private individuals on which to build houses, subject to certain restrictions, so as to secure improved sanitary conditions. In other cases, the corporation itself has built blocks of dwellings. Already, nearly 900 tenements (or suites of rooms) have been erected, and 1,301 additional tenements (or suites of rooms) are in course of building, or contemplated.

The Liverpool municipal dwellings are mostly in the form of blocks of tenement houses or "flats," three or four stories high. The local Government board (a bureau directly under the control of Parliament) insists upon certain provisions to meet the necessity of dispossessed tenants before sanctioning demolition operations. Until 1899, there had been a conspicuous failure to meet this obligation, but since then the wants of dispossessed persons have been carefully foreseen and met. The present policy is to have blocks of dwellings ready within convenient distance, into which dispossessed tenants can go immediately they remove from the condemned property. Most of these tenants are dock laborers or a like class. It is claimed that Liverpool alone among the municipalities of England and Scotland has been successful in supplying a type of building within the financial means of the poorest of the poor. A single room can be had for as low as 45 cents a week. The rent of two rooms ranges from 60 to 80 cents; that of three rooms, from $1 to

$1.10; that of four rooms (the largest suites provided), from $1.25 to $1.50. The fixtures are simple, but superior to those supplied in like dwellings by private landlords. In a few dwellings, hot water is supplied. Others have gas, paid for on the "slot" principle. Two cents' worth is sufficient for four or five hours' consumption by one burner. Since Liverpool went into this enterprise, it has paid $1,925,000 for demolished property, and, in addition, several pieces of land have been purchased, costing $335,825, for the erection of municipal dwellings. The cost up to date for construction alone has been $732,875. The total burden on the local taxation as the result of these combined operations amounts to 1¾d. in the pound sterling, or 3¼ cents on every $4.86. The rents paid are insufficient by about 2 per cent to meet the cost of the dwellings, without counting anything for a sinking fund, depreciation, etc. The present effort of Liverpool is to provide housing for the dispossessed tenants of condemned slums. It will probably take twelve years to complete this task. Then, the question of providing better accommodations for artisans and mechanics will possibly be faced. Liverpool, it is said, owns more revenue-producing real estate than any other municipality in the world, its income from this source being about half a million dollars a year.

The London County Council has within a recent period taken hold of this "housing question" with a firm and comprehensive grip. There will not be as much compensation paid to owners of slum property as formerly. One scheme adopted by the London County Council provides cottages for 8,000 people; another (and this is on an estate outside of the London boundary line) will accommodate 6,000 people; and a site has been bought where 42,000 are to be accommodated in pretty little cottages, with gardens. London undertakes to provide for the artisan class as well as for the "casual," and in that particular it is in advance of Liverpool.

Strange to say, the housing question is getting to be an acute one in the country districts, as well as in the British municipalities. It is claimed that one of the reasons why the rural population flock to the cities is because many of the great landowners not only fail to erect decent residences for the laboring people, but some of them actually refuse to allow cottages to be erected on their estates, either because of æsthetic reasons or because the laborers' cottages would have a tendency to depreciate the value of the estates to prospective wealthy purchasers.

Liverpool boasts of having one of the best street-railroad systems not only in Great Britain, but in Europe. The corporation got control of the system in September, 1897, and has substituted electric for horse cars. At the date named, there were 68 miles of

tracks within the city and about 7 miles in the surrounding district connecting therewith. There were then 287 cars, 156 omnibuses, and 3,623 horses. The municipality paid $2,836,875, the purchase price covering tram cars, omnibuses, good will, vested rights, etc. In November, 1898, an experimental electric line 5 miles in length was opened. The work of reconstructing the new lines commenced in January, 1899, and, by the end of 1900, 100 miles of lines were completed, including extensions. The overhead-trolley system is used. Of the entire 102 miles of the track laid down, only 6 miles were laid with American rails and 5 miles with German rails; the remaining 91 miles were laid with rails of English manufacture. The prices paid were: For American rails, $42.58 per ton; German rails, $29.79 per ton; and British rails, $34.06 to $44.39 per ton. The first 15 motors and 15 "trailer" cars for the experimental line were obtained from Germany; subsequently, 15 Brill cars were obtained from the United States. The balance of the cars are of English make. The prices paid were: German cars, $3,567.14 each; German "trailers," $1,275.02 each; American cars, $3,065.89 each; English cars, $2,384.58 to $2,856.63 each. In reply to my inquiry as to whether there has been any discrimination in favor of British rails, cars, electrical equipment, etc., as against American, German, or other foreign make, and whether the contracts were made under competitive bids, I am officially informed by the manager that tenders were invited and the most advantageous were accepted.

Most of the cars in use and all those now being made are of what is known as the "standard Preston type." This car is shorter than most American cars, and has a "reverse" staircase for top outside seats. Each car accommodates 22 inside and 34 outside. In fine weather, the outside of cars and omnibuses is preferred in England to the inside. Experience has shown that the style of car used in Liverpool gives the most satisfaction to the British public. There are no "summer cars" of the American type here; the weather is too variable. The fares charged are by distance. Two cents is the lowest fare for which 3 miles can be traveled; 5 miles 308 yards can be traveled for 4 cents; 7 miles 287 yards for 6 cents; and 8 miles 495 yards for 8 cents. The total traffic receipts during 1901 were $2,341,915. The percentage of working expenditure to gross receipts is 63.7. Parliamentary powers are being obtained to devote not exceeding one-third of the net profits to the relief of the rates; the balance of net profit goes to a renewal or reserve fund. The total number of employees is 2,293, of whom 646 are drivers, 595 conductors, 117 inspectors, etc. Drivers and conductors work ten

hours per day. Under the old system, before the municipality took charge of the tramways, the average working-day of conductors and drivers was fourteen and one-half hours. They are now paid 12 cents per hour. After twelve months' service with merit, 24 cents per week extra is paid for each period of ten years of approved service. Under the old régime, drivers received $6.80 per week, increasing in eighteen months to $8.51 per week; and conductors received $5.95 per week, increasing in three years to $6.80 per week. The rate of pay under the old régime was for seven days a week. The system already extends outside the city boundary, and it is proposed to connect it with lines of a new enterprise in which American capitalists are interested, known as the South Lancashire Tramways Company, and which will form a network of street-car lines between Liverpool and important towns in South Lancashire.

Several municipalities have adopted what is known as the "direct" system of labor as contra-distinguished from that of the "contract" system. This is notably the case in London. The county council of London employs workmen on a principle which is "based on the rates of wages and hours of labor recognized by associations of employers and trades unions and in practice obtained in London." There is also a stipulation that "where in any trade there is no trade union, the council shall fix the rates of wages and the hours of labor, and shall from time to time revise the same as may be necessary." A great deal of opposition has sprung up against this system of direct employment, and the opposition has made much capital of the alleged fact that the bricklayers employed by the London County Council under the above conditions only lay down one-half or even one-fifth as many bricks per day as contractors get laid even by union labor. On the other hand, the claim is made that the municipality gets its work done cheaper in the end because it does not have to pay profits to contractors and other middlemen. Speaking generally, nearly all of the work done by municipalities, even where municipal ownership prevails, is by contract; but, as a rule, these contracts are given out subject to what is known as the "fair-wage" condition, which is substantially the wage condition adopted by the London County Council. In connection with this question of direct labor, it is interesting to note that many British railroad companies adopt it, they making all their engines and rolling stock themselves; and this, by the way, is given as one of the reasons why the outside British makers of locomotives are not able to meet foreign competition, because they have not got patronage enough to warrant them in keeping their plants up to date.

One of the greatest examples in England of "direct" labor is furnished by the Liverpool Dock Board. This board formerly did all its work itself. The question of cost did not primarily come in, but the principal reason for direct labor was the belief that it would not be safe to trust contractors with the kind of work to be performed. For two or three years past, however, a great deal of work has been given out by contract, and it is claimed that the contract work is done just as well as that performed by direct labor, and much cheaper. One of the greatest objections urged against the employment of direct labor by municipalities and large corporations is that the tendency is to perform the work "too well"—that is, to make it unnecessarily heavy and substantial without any discrimination being shown as to work that can be lightly done, the object being to "string out" the job. And the further objection is made that when a municipality or public trust has its work done by direct labor, the employees do not work nearly as hard as do employees of private contractors, and, as a rule, get more pay than those who work for contractors.

The advocates of municipal socialism in Great Britain have been gradually increasing their demands, and now a point has been reached where even many supporters of that system feel called upon to cry a halt. Within the last year or two, an active opposition has grown up in Parliament to municipal trading. There are two schools of thought among municipal socialists. In the first school are those who not only advocate the municipalization—and in certain lines the nationalization—of such enterprises as waterworks, street railroads, electric lighting and power supply, and railroads, but who favor the public control of all departments of human production and energy—not suddenly, but by degrees—and the abolition in time of the private manufacturer, trader, or tradesman. These form the extreme school of national and municipal socialists. Their number is possibly increasing, but, without a doubt, their opponents are in an overwhelming majority, even among those who favor the present stage of municipal socialism. Speaking generally, the enterprises of municipal socialism in Great Britain have been within well-defined lines. In a recent article in a London periodical (The Queen, March 8, 1902), the Hon. Lionel Holland says:

> Those, finally, who contend that municipal trading trenches upon the proper sphere of individual enterprise betray a singular want of the faculty of discrimination. There is a class of undertakings which inevitably tend to become monopolies, when the public loses the advantage of competition—the great merit of private enterprise—which concern the satisfaction of wants common to the community, when, by resigning their supply to private speculators, the community is deprived of effective control over matters vital to its convenience; whose functions are of a semipublic nature, and require the sanction of the law to be put into operation.

Such undertakings are clearly differentiated from the ordinary operations of private traders; they can only with justice and advantage to the community be vested in a representative body, to be conducted for the profit and convenience of the public.

The above may be accepted as an accurate definition of the limitations laid upon most of the experiments in municipal socialism so far undertaken in Great Britain, although there are plenty of examples indicating the all-embracing programme of the advanced municipal socialists.

It has got to be quite the fashion in England to laud the municipality as being of far more vital concern to the people than Parliament. The claim is made that local government in Great Britain is as nearly ideal as it can be. One of the greatest advocates of municipal socialism, Mr. George Haw, in a recent standard work, Municipal Government the Hope of Democracy, says:

Neither America nor France, under republics, excels our municipal code. We have the largest franchise and widest powers. Americans themselves admit that our municipal institutions are fifty years in advance of theirs.

A number of changes in the municipal code of this country are being suggested, but it appears that most of the apostles of municipal socialism concede that the present code is amply sufficient for the widest development of their views. Mr. Haw, in his work just quoted, says that "the fault with us is that we have not learned to make full and good use of what we have won." Speaking of the democracy of Great Britain, he adds: "It has now no need, as of old, to look to Parliament for reform, but to look to itself."

Municipalities are held by an ever-increasing number of people in this country to be the legitimate and most practical medium for the development of the principles of socialism, and voluntary organizations for this purpose are being discarded, the existence of statute law being deemed necessary, both to do and to restrain, to insure success.

The claim is made that the best-governed towns in Great Britain and the towns that have the least taxes are those where municipal socialism prevails. But this claim is strongly controverted, especially as to ultimate results; and the opponents of municipal socialism charge against that system a tendency to extravagance, jobbery, official indifference, and lethargy, and the broader charge is made that the system contracts and paralyzes individual effort and enterprise. Yet it should be kept in mind, in connection with this criticism, that municipal socialism has in some cases been embarked upon almost out of necessity—as, for instance, in the case of the housing of the poor in Liverpool, where private enterprise has not only failed absolutely to solve the problem, but has not even alleviated its most crying evils.

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8	10	2	8	5	0	9	1	6	10	1	8	11	6	10	12	19	3	
8	17	10	8	12	6	9	9	9	10	10	10	11	17	2	13	11	1	
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*As these quotations should be submitted in British currency, the

e from 2 by 6 to 4 by 11 inches.

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2	8	16	0	11	6	3	12	3	8	13	4	0	9	0	0	12	7	6
2⅛	9	7	0	12	0	5	12	18	11	14	0	6	9	11	2	13	2	11
2¼	9	18	0	12	14	7	13	14	2	14	17	0	10	2	6	13	18	5
2⅜	10	9	0	13	8	9	14	9	5	15	13	6	10	13	8	14	13	10
2½	11	0	0	14	2	10	15	4	7	16	10	0	11	5	0	15	9	4
2⅝	11	11	0	14	17	0	15	19	10	17	6	6	11	16	2	16	4	10
2¾	12	2	0	15	11	2	16	15	1	18	3	0	12	7	6	17	0	3
2⅞	12	13	0	16	5	3	17	10	4	18	19	6	12	18	8	17	15	9
3	13	4	0	16	19	5	18	5	6	19	16	0	13	10	0	18	11	3
3⅛	13	15	0	17	13	7	19	0	9	20	12	6	14	1	2	19	6	8
3¼	14	6	0	18	7	9	19	16	0	21	9	0	14	12	6	20	2	2
3⅜	14	17	0	19	1	10	20	11	3	22	5	6	15	3	8	20	17	7
3½	15	8	0	19	16	0	21	6	6	23	2	0	15	15	0	21	13	1
3⅝	15	19	0	20	10	2	22	1	8	23	18	6	16	6	2	22	8	7
3¾	16	10	0	21	4	3	22	16	11	24	15	0	16	17	6	23	4	0
3⅞	17	1	0	21	18	5	23	12	2	25	11	6	17	8	8	23	19	6
4	17	12	0	22	12	7	24	7	5	26	8	0	18	0	0	24	15	0
4⅛	18	3	0	23	6	9	25	2	7	27	4	6	18	11	2	25	10	5
4¼	18	14	0	24	0	10	25	17	10	28	1	0	19	2	6	26	5	11
4⅜	19	5	0	24	15	0	26	13	1	28	17	6	19	13	8	27	1	4
4½	19	16	0	25	9	2	27	8	4	29	14	0	20	5	0	27	16	10
4⅝																		
4¾																		
4⅞																		
5																		
5⅛																		
5¼																		
5⅜																		
5½																		
5⅝																		
5¾																		
5⅞																		
6																		

A SQUARE OF FLOORING BOARDS

100 feet running of 12 inches wide.	172 feet
110 feet running of 11 inches wide.	190 feet
120 feet running of 10 inches wide.	200 feet
135 feet running of 9 inches wide.	220 feet
150 feet running of 8 inches wide.	

g United States values are not given—£1=$4.8665; 1s.=24.3 cents.

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Two observations are appropriate to be made in conclusion: Speaking generally, municipal government in Great Britain is honest, intelligent, and energetic; and, as a rule, politics has but little to do with the engagement or retention of civic employees.

JAMES BOYLE,
Consul.

LIVERPOOL, *April 25, 1902.*

BRITISH DEMAND FOR AMERICAN SHOOKS.

Under date of October 23, 1901, I reported an increasing demand for American shooks.* The publicity given to the subject resulted in considerable activity on the part of American exporters, and the growth of the business has been phenomenal. Relations between the American sellers and the English buyers, as well as the experiences of box makers and consumers, have not, however, been entirely satisfactory, owing chiefly to the failure of our exporters to meet the exact requirements of the English market. As the market for American shook lumber, not only for return to the United States, but for continental, colonial, and even local use, is almost illimitable and practically undeveloped, a statement of general requirements as to size, price, quality, etc., will answer many independent inquiries. American sellers, to do satisfactory business, must adopt the English system of measurement in their correspondence and quotations. This is made clear by the attached table, which also gives current prices in English values. In order to secure a practical English view of market conditions, I talked with a number of buyers, box makers, and consumers. Mr. Henry Cutts, Bentinck Buildings, Wheeler Gate, is a leading lumber agent or broker with considerable American experience. He said, substantially:

Your methods of selling by superficial measurement are not understood by the majority of our case makers. Our terms of purchase and sale are by the "standard," as shown by the table [referred to above]. For lace shooks, the standard is 720 feet lineal of 3 by 11 inches. This measurement is equal to 1,980 feet superficial, 1 inch thick, or 2,640 feet superficial three-fourths of an inch thick, which, with the five-eighths, is the usual thickness of the case wood used here for the lace trade. Random board lengths are absolutely required. As the boxes, especially for the lace and hosiery trades, vary greatly in size, but average large, the special lengths offered by your lumbermen are of no use whatever, as they entail more labor and room to store them separately than would be caused by crosscutting long lengths, say from 6 feet upward. The size generally required is five-eighths of an inch thick by 7 to 8 inches wide, and in length from 6 to 20 feet. The lumber should be planed or surfaced on one side only, and edges grooved and tongued. The lumber used here at present is chiefly North Carolina pine, but white pine and poplar will do equally as well, and a little sap or a few knots are not objected to, providing the timber is sound.

*ADVANCE SHEETS No. 1192; CONSULAR REPORTS No. 256.

As to price, case makers here, as elsewhere, in their anxiety to do the trade, are liable to undercut their competitors. Competitive merchants in their turn must follow suit, and we can not afford to give more than about £8 10s. ($41.36) per standard of 720 feet lineal, three-fourths of an inch thick (or its equivalent of 2,640 feet superficial), c. i. f. Liverpool or Manchester, as on top of this price are dock dues of 5s. to 7s. 6d. ($1.22 to $1.82) per standard, and the carriage inland to Nottingham from Liverpool is £1 11s. 3d. ($7.36) and from Manchester £1 6s. 3d. ($6.38). Swedish and Russian timber is also bought at from £1 10s. to £2 ($7.30 to $9.73) less than £8 10s. ($41.36), and, coming into Hull or Grimsby, the inland carriage is only £1 2s. ($5.35). Thus, the advantage offered by the United States in admitting the cases free is minimized considerably by the actual difference in the cost of the timber used. Many goods other than lace and hosiery are shipped to the United States, such as tobacco, which requires only ungrooved but surfaced boards one-fourth of an inch thick. If the American supply can be made to suit our requirements, there is no end to the market.

Another local firm—H. & M. Lewis, Canal street—after altering lineal standard of 720 feet to superficial feet, made this statement, and it will be seen that these figures tally closely with those given by Mr. Cutts:

American box shooks are now in good demand here. They are required in lengths of, say, 10 to 16 feet, 6 inches and upward in width, and five-eighths of an inch in thickness, either planed one side or unplaned, but must be of uniform thickness. The kind of wood is of no importance, providing it is all square edged and sound. To be a marketable article, it should be delivered in Liverpool at not more than $44 per standard of 2,640 superficial feet of board.

I am informed that considerable trade of this kind is established in London, where a charge exists of 2 per cent for cash against bills of lading. The usual time here is four months, or a discount charge of 2½ per cent cash within one month.

S. C. McFARLAND,

NOTTINGHAM, *March 17, 1902.* *Consul.*

MANCHESTER EXPORTS TO THE UNITED STATES.

Consul W. F. Grinnell sends from Manchester, April 12, 1902, statement of exports of cotton yarn and cotton goods to the United States during the quarter ended March 31, as follows:

Yarn exports.

Month.	1902.	1901.
	Pounds.	*Pounds.*
January	288,295	199,654¼
February	227,256¼	171,054¾
March	284,520	185,180
Total	800,071¼	555,889

Exports of cotton velvets, cords, and fustians.

Month.	1902.	1901.
January:	*Yards.*	*Yards.*
Dyed	509,942¾	353,937
Undyed	596,615¼	452,702¾
Total	1,106,558	806,639¾
February:		
Dyed	307,672¾	314,416¾
Undyed	451,680	713,484
Total	759,352¼	1,027,900¾
March:		
Dyed	240,991¾	281,870½
Undyed	600,696¼	590,215½
Total	841,688	872,086
Grand total	2,707,598¼	2,706,626½

NEW LACE MACHINE.

Considerable interest and speculation have been aroused in lace circles here by the private exhibition of the first working model of a new lace machine, the invention of Herr A. Matitsch, of Vienna. The machine, which in general appearance, capacity, and economy of product resembles the Levers apparatus, will, it is claimed, produce real lace, or lace so closely resembling handmade products of the same patterns as to be hardly distinguishable by experts. Patents have been secured in the United States, Belgium, Brazil, Canada, Germany, England, France, Italy, Mexico, Norway, Austria, Portugal, Sweden, Switzerland, Spain, and Hungary. In Russia, the patent is reported but not yet confirmed, and supplementary patents covering improvements invented as the practical building and operation of the present machine progressed have also been taken out or applied for, as above. Herr Matitsch studied in a technical school at Vienna, and entered—in 1867—the well-known lace factory of Ludwig Dambock, which operates about one hundred machines. From machine engineer he became technical director and, later on, partner, superintending the building of new machines. As the firm also handled handmade laces, he became practically familiar with all branches of the trade and conceived the idea of devising a machine which would produce a cheap but "real" torchon lace, suitable for washable trimmings. In 1882, he had a model constructed which produced a torchon lace, but it was a technical, rather than a practical, success. He continued the development of the idea, and, retiring from the firm in 1895, devoted

his whole time to the subject. Coming to Nottingham, after completing a model in Vienna, he, after some effort, made arrangements with an experienced manufacturer to construct the machine. Herr Matitsch then returned to Austria and began the training of three textile designers, in order to have proper jacquards ready upon completion of the apparatus. In June, 1899, this was roughly capable of working; the designers were brought here, and three years of patient development followed. Photographs of the machine (illustrations 1 and 2), as it stands to-day in working order—representing already an investment of £20,000 ($97,000)—give only a general idea. To translate the language of the inventor as nearly as possible:

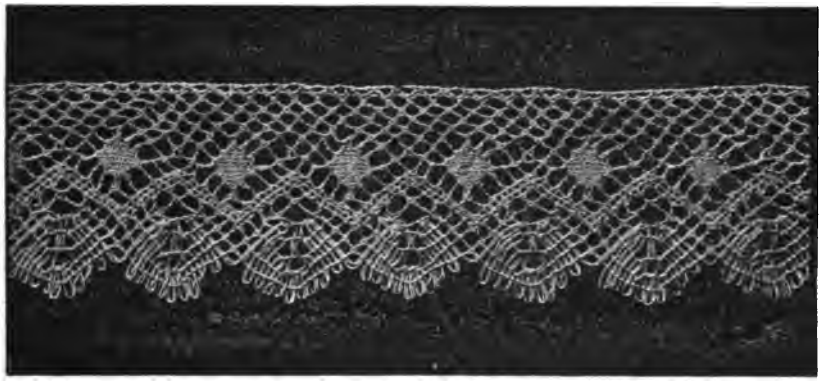
It is based both upon the bobbinet and the English twist-lace machine, utilizing both principles, and can produce any number of breadths up to the length of the machine, the working model having a length of only 100 inches, whereas 200 inches are feasible. It thus vitally differs from all present single-breadth machines producing a similar lace. It also differs in that every carriage and every needle can be moved independently, and any carriage can not only be kept back in the combs, but can also be moved the length of the machine, right or left, according to convenience. In the Levers machines, all the carriages have to be moved simultaneously from one line of combs to the other and are not movable sideways, and, consequently, the bobbin threads run into the laces produced without crossing each other in the lengthwise direction of the lace, this being the reason that with bobbin threads alone no lace purl can be produced with the Levers machine. In the Matitsch machine, bobbin threads can be led from one side of the stuff to the other, thus crossing one another underneath. The lace purls are produced with the bobbin threads alone, as well as the other constructive elements, just as in cushion lace making by hand, thus securing a real lace and not an imitation, as with the Levers machine. A further material difference is that the needles which hold the completed thread crossing are not separated into two ranges with one movement, but each needle is completely independent and can be placed at any time into any one of twenty different holes and kept there as long as desired; while with the Levers machine, one range of needles has to be alternately taken out of the goods after the carriages go over, so that, after the draw out, they can be brought back to the same position which they occupied before, the necessity thus arising for putting the threads in rows and for a permanent and uniform winding of the completed thread web or lace. In the Matitsch machine, no necessity exists for working in rows in making the lace purls, but this can be done at will, just as in cushion-lace making. The winding can be done at convenient times and in convenient lengths.

Samples of several lace patterns made upon this new machine are forwarded with this report.*

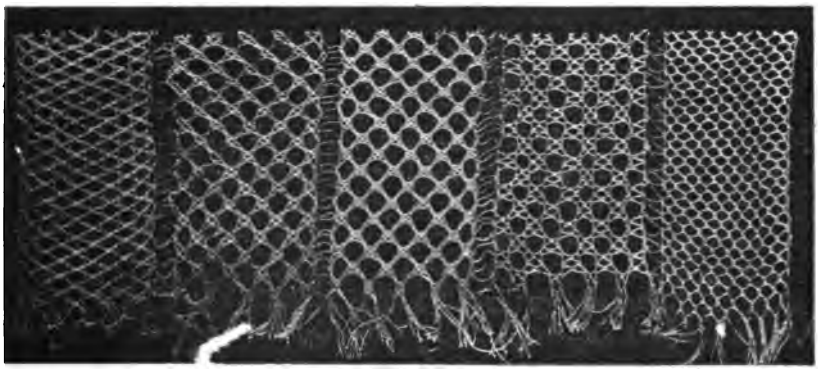
Photograph No. 3 shows what is called a fan torchon (Fâcher torchon), a lace which can only be made with retrograde threads running upward on the goods, which up to now has not been produced by any machine.

The patterns shown in No. 4 contain in their construction several

*Samples filed in the Bureau of Foreign Commerce, where they may be examined by parties interested.



3.—FAN-TORCHON LACE.



4.—DIFFERENT LACES PRODUCED SIMULTANEOUSLY

different lace grounds—Mechlin, Brabant, Idria, and Chantilly—with webs of two and four threads and worked side by side, demonstrating that special machines are not necessary to produce different laces, but that they can be simultaneously produced upon this machine by the use of the proper jacquard cards.

All other machines for producing the equivalent of handmade lace, including the Birkin machine of England, are, it is claimed, in construction and scope similar to the original French machine of Mathere. When the model of the Matitsch machine was produced in Vienna, an exhaustive report upon it was made by Prof. Max Kraft, professor of mechanics at the technical high school of Craz, Austria, to the German Patent Tribunal. In his report at that time (1897), this expert made the following comparison:

> There are two real torchon-lace machines already in existence, viz, one by Hedtmann & Henkels, Langerfeld (German construction), and the other by Mathere, Paris (French). They do not, however, answer the purpose thoroughly, because the first can only make a single interlacing (twisting), and, consequently, produces the plainest kind of laces. The Mathere machine is well thought out, but it does not work economically enough, as it can make but one breadth at one time. The construction and working of these machines, which leave more or less to be desired, are improved and entirely superseded by the Matitsch machine, which can manufacture at ease at one time—*i. e.*, as far as the length of the machine goes—any number of breadths desired, while the Mathere machine is only able to produce one breadth.

The photographs disclose obvious imperfections in the samples, and it is equally obvious that the samples are of coarse texture. The defects, the inventor states, arise from the difficulties of tension, etc., which any expert will understand and would exist in the similar operation of a Levers machine, in working the narrow breadth of 15 inches upon a machine calculated to work 100 inches or more. The narrow breadth is being worked for exhibition purposes solely upon the ground of economy, it being evident that if the machine can work the patterns shown, it can also work to its full length. The coarseness of the sample product was also intentional, a coarse gauge being adopted in order to secure mechanical ease in the construction, alteration, and perfection of parts. For similar reasons, the present machine is geared to work only 60 motions per minute, while 100 motions are within mechanical possibility.

As to the mechanical power and profitableness of the machine, the following calculation was drawn up by the inventor at my request, 22 samples of different laces being utilized in order to reach an average. As a basis, current prices for similar handmade laces are taken, with a speed, as in the present model machine, of 60 motions per minute.

Matitsch machine-made-lace statistics.

Pattern number.	Gauge.	Needles in 1 strip.	Strips.	Millimeter* in 1 repeat.	Motion in 1 repeat.	Motion in 1 meter.†	100 meters, 200 inches wide, finished in—	200 inches wide, finished in 100 hours.	Single strips finished in 100 hours.	Single strips finished in 1 year.	Linen wanted for the production of a year.	Price per 100 meters.	Value of the yearly production.
							Hours.	*Meters.*	*Meters.*	*Meters.*	*Meters.*		
1	20	10	400	11	168	15,272	424	23.585	9,434	471,700	23,585,000	$2.92	$13,772
2	14	18	155	22	324	14,727	409	24.449	3,789.59	189,479	17,053,110	4.37	8,297
3	12	20	120	24	276	11,500	319	31.349	3,761.88	188,094	18,809,400	6.08	11,441
4	12	18	133	25	588	23,520	653	15.313	2,036.62	101,831	9,164,790	7.79	7,918
5	10	18	111	46	576	12,521	347	28.818	3,198.79	159,939	14,394,510	7.79	12,940
6	10	24	83	60	384	6,400	177	56.497	4,689.25	234,462	28,135,440	8.76	19,510
7	20	26	153	20	342	17,100	475	21.052	3,220.95	161,047	20,936,110	8.76	14,103
8	16	20	160	35	402	11,484	319	31.347	5,015.52	250,776	25,077,600	5.59	14,030
9	16	20	160	18	252	14,000	388	25.773	4,123.68	206,184	20,618,400	8.27	17,057
10	16	38	84	25	528	21,120	586	17.04	1,431.36	71,568	13,597,920	20.19	14,453
11	16	24	133	20	288	14,400	400	25	3,325	166,250	19,950,000	10.46	17,393
12	16	56	57	40	1,038	25,950	720	13.888	791.61	39,580	11,082,400	26.98	14,633
13	18	32	112	30	738	24,600	683	14.641	1,639.79	81,989	13,118,240	21.89	17,953
14	14	20	140	50	1,212	24,240	673	14.858	2,080.12	104,006	10,400,600	12.89	13,412
15	20	10	400	10	438	43,800	1,216	8.223	3,289.2	164,460	8,223,000	4.86	8,001
16	20	26	153	20	1,242	62,100	1,725	5.797	886.94	44,347	5,765,110	21.89	9,709
17	20	26	153	22	1,266	57,545	1,598	6.258	957.47	47,873	6,223,490	38.93	18,634
18	20	22	181	10	264	26,400	733	13.642	2,469.2	123,460	13,580,600	14.59	18,021
19	20	28	142	26	1,260	48,461	1,346	7.429	1,054.91	52,745	7,384,300	20.68	10,906
20	20	30	133	30	1,398	46,600	1,294	7.727	1,027.69	51,384	7,707,600	15.81	8,122
21	16	56	57	85	2,376	27,952	776	12.886	734.5	36,723	10,283,000	38.93	14,298
22	20	48	83	90	2,010	22,333	620	16.129	1,338.7	66,943	16,066,320	80.29	53,751
Total													338,354
Average per pattern													15,422

*1 millimeter=0.039 inch.

†1 meter=1 yard 3.37 inches.

Assuming the average reached in this calculation, the following working estimate for one year is made upon a plant of 200 60-motion machines:

Description.	Value.	
Capital account.		
200 machines at £1,200 ($5,833) each	£240,000	$1,167,960
Buildings, etc	40,000	194,660
Working capital	100,000	486,650
Total	380,000	1,849,270
Expense.		
Wages at £400 ($1,946) per machine	80,000	389,320
Material at £250 ($1,216)	30,000	145,995
Management at 20 per cent	26,000	126,529
10 per cent wear of plant	28,000	136,262
10 per cent for cost of sale	63,380	308,439
Total	247,380	1,106,545
Profit.		
Production of 200 machines at £3,169 ($15,422) each	633,800	3,084,387
Less expense	247,380	1,203,875
Net profit	386,420	1,880,512

This shows 101 per cent profit. Calculations upon a similar plant, with machines working 70 motions, produce 121 per cent; 80 motions, 142 per cent; and 100 motions, 182 per cent. When asked as to what plans of organization or sale were on foot, Herr Matitsch replied that he should not, himself, undertake the erection of a working machine; that he had brought his invention to a practical success at a cost of £20,000 ($97,330) and many years' labor; and that he now desired to sell it, his price being £50,000 ($243,325), with such stock interest in the company as might be mutually agreed upon.

Within the past few days, or since the sample production of lace upon the Matitsch machine began, considerable attention has been paid to the matter by the Austrian, London, and Nottingham press, but comment has been largely speculative, one paper, the News, stating:

> Those in the trade in Nottingham who have heard of the invention regard the matter with entire equanimity, though, as one manufacturer wisely remarked: "You never know. I remember when the embroidery machine was pooh-poohed by everybody. And I have seen simple inventions in the lace trade make the fortunes of the people who grasped the possibilities. I shall withhold my judgment until I see the machine at work."

The Express said recently:

> The Austrian Government, it is said, are keenly interested. The machine is said by those who are in a position to know something about it to be a most wonderful affair—a monument of mechanical skill and ingenuity. If successful, it

would sound the death knell of handmade lace, but, let us hope, with compensating advantages. So far as the Levers-lace trade is concerned, the machine will not be in the slightest degree a competitor.

The same paper, speaking of the interest aroused by the machine, quoted this comment:

"There is really nothing new in it at all," was the first remark of a leading builder of lace machines in Nottingham, when waited upon to gain such information as was possible about the machine invented by Herr August Matitsch. This gentleman said he had people frequently coming and showing him specifications of machines to produce something near handmade lace, and they most of them looked surprised and shocked when he told them it was not wanted, as there was no market for it.

From another machine builder, an authority equally authentic, we learn that there is nothing new about the machine—that is to say, it has been exploited freely in Nottingham. If the machine was what he believed it to be, it would turn out lace very much superior to Nottingham goods—lace which would come very near the real article. Prices would approach those of real lace, and therefore the Matitsch machine would compete with that rather than with the commoner lace which Nottingham made. Asked who would be principally affected by the new patent if adopted, he replied, the French makers, except those at Calais. English manufacturers would not be practically touched at all; but Matitsch's machine on paper and working were two different things, and he could not see where the market for it would be.

The Vienna Neue Freie Presse characterizes the invention as "epoch making in the lace industry"—and so comment runs. Nottingham lace and machine manufacturers are proverbially conservative. Just now, Levers-lace manufacturers are busier than for ten years past, and are unable to meet demands. The natural skepticism with which all new inventions are treated, coupled with the great demand for Levers lace, does not furnish much encouragement here for an invention which, if practically successful, must eventually have a great effect upon the lace industry. The address of Herr Matitsch is the George Hotel, Nottingham, or 6 Millergasse, 52 Vienna.

S. C. McFARLAND,

NOTTINGHAM, *April 12, 1902.* *Consul.*

MARKET FOR COTTON THREAD.

Consul-General R. P. Skinner, of Marseilles, under date of March 26, 1902, writes:

I ascertain that N. Homsy et fils, of this city (rue des Vignerons, 11), who practically control the Persian Gulf wool trade, are also very large buyers of cotton thread, which is woven by the

natives into fabrics of a character unlikely to be displaced by the machine-made cottons of England and America. I have had a very satisfactory talk with Mr. N. Homsy, who tells me that his firm is not represented in the United States and makes its purchases of cotton thread exclusively in Manchester. He would be pleased, however, to receive samples, prices, and general information from the United States. Purchases of cotton thread for this firm are made through the London house, S. Homsy & Co., 37 St. Mary Axe, London, E. C. I am under the impression that manufacturers and exporters of cotton thread would consult their own interests by getting into touch with this firm. I might say in passing that there would seem to be an opening for a good deal of American business in the Persian Gulf, which is at present almost an unknown country, so far as our foreign commerce is concerned.

THE ANTWERP LABOR EXCHANGE.

Ever since the great Antwerp dock strike in the winter of 1900–1901, there has been a combined and successful effort on the part of employers to combat labor unions by the formation of a "federation" which has for its object to protect and develop the interests of the shipping trade. This federation assures regular work for the dockers, is gradually uprooting the evils of which the working classes complain, and by arbitration is amicably settling all disputes. The workmen are guaranteed an indemnity in case of lack of work, and mutual-benefit associations among the dockers are favored and encouraged. These associations supply the members with medical aid, old-age pensions, relief to their families in the event of sudden death, etc. All these privileges are made possible by subscriptions from both employers and employed. The success of the federation has exceeded all expectations, and now over 5,000 dockers have become members. Never has there existed a more complete understanding between masters and men than under these conditions. Day work has now proved so efficacious that the necessity for overtime work has greatly diminished.

The new Labor Exchange, which was opened on the 16th of March, is constructed in the very heart of the Antwerp maritime district. It furnishes at cost excellent beer, coffee, and tea, but no gin. At the close of work, the men are also at liberty to eat their dinners at the exchange. Well-appointed lavatories are provided free of charge; also offices, where the men are paid, and a well-stocked dispensary is ready for all cases of emergency.

The ceremony of opening the exchange took place in the presence of the Minister of Labor, the burgomaster of Antwerp, and several functionaries. A large number of dockers were also present. The exchange is now open for business, and a similar building is contemplated for the south end of the city.

GEO. F. LINCOLN,
Consul-General.

ANTWERP, *March 26, 1902.*

ARTIFICIAL MARBLE IN DENMARK.

The lack of marble in this country has led to many attempts to produce a substitute which would equal in decorative effects the natural product, and would not exceed it in cost.

Some success has been achieved in the manufacture of this article in Sweden, but the thin slabs would not keep their shape, inclining to bend and warp. The veins were stiff and angular, and the soft transitions of color which make variegated marble a thing of beauty were wanting.

A significant advance has been made in this industry by a Danish master builder, who is producing a stone of such delicate transition of tints and play of color that it is impossible to distinguish it from the natural product; while as to cost of manufacture, it can compete with all other artificial marbles. The imitation of the more expensive species does not exceed in cost that of the cheaper ones.

The inconvenience hitherto met with, that the mass had to be greased to prevent adhesion (thereby destroying the crystalline surface characteristic of the genuine article), has been overcome.

The process of manufacture is simple and easily learned, and the cost of the outfit does not exceed $175. The article can be produced in any form desired—columns, plain or fluted, and capitals—as readily as flat slabs. It is claimed that even pictures may be made of this material. It seems to have the durability of genuine marble, but its cost is only about one-tenth as much. At the present stage of the development of the industry, the maker is able to produce a slab about half an inch thick at a cost of 14 cents per square foot.

The inventor's name is Soren Schongaard, and his address is Copenhagen.

J. C. FREEMAN,
Consul.

COPENHAGEN, *April 22, 1902.*

AMERICAN SHOES IN THE NETHERLANDS.

During the past six or eight months, there has been a growing demand for American shoes—for men as well as for women. Some manufacturers have introduced their goods with a moderate degree of success, especially in the finer grades. The most popular styles seem to be men's laced and buttoned and women's buttoned shoes. The retail selling prices vary from 4.50 florins ($1.80) to 25 florins ($10) per pair. There is no prejudice whatever against American shoes. The local factories confine themselves for the most part to the manufacture of the cheaper and inferior grades, though in some cases fine shoes are also turned out. The cost of production varies from 2.50 florins ($1) to 7.50 florins ($3) per pair. The customs duty is 5 per cent on all grades and the tare from 3 to 3⅓ per cent. Some of the local factories contain American machinery, but it is not as successful as it should be, owing largely to the fact that it is operated mainly by inexperienced hands. It is advisable to duplicate the German lasts, for the American lasts are not, as a rule, suited to Dutch feet. Payments are often tardy, but, if proper precautions are used, losses rarely occur. Germany and Austria supply the largest quantity of shoes to Holland. The American shoe is far superior, but it is also much more costly. One great drawback to trade has been the long delay in filling small orders, sent to complete numbers which were sold out. The only remedy for this would be the establishment here of a wholesale distributing station, which would also largely develop the sale of the American shoe. This office could dispose of advertising matter, and it would be advisable to have circulars printed in the Dutch language; it would also be of value, if a showroom and distributing station were established here, to advertise in the trade journals.

FRANK D. HILL,
Consul.

AMSTERDAM, *April 21, 1902.*

AMERICAN FLOUR IN THE NETHERLANDS.

In view of the discussion of the proposed 10 per cent import tax upon wheat and flour, the extension of the trade in American flour here is interesting. The data herewith transmitted was compiled by J. de Boer, of Amsterdam, surveyor of the Sea Insurance Company, Limited, of Liverpool, under the personal supervision of one of the most experienced American flour men in Europe, and consequently may be considered accurate.

Incidentally, I venture to observe that American flour is imported into Dutch ports in bags, and not in barrels, as one would infer from perusing our Treasury statistics.

Statement showing arrivals of wheat flour, rye flour, rolled oats, and oatmeal at Amsterdam and Rotterdam during 1901.

Whence imported.	1901.			Total for 1900.
	Amsterdam.	Rotterdam.	Total.	
Wheat flour:				
United States Atlantic ports....bags...	725,296	1,770,756	2,496,052	2,106,116
Baltic ports....do.....	69,650	33,465	103,115	125,582
Austrian ports....do.....	1,554	96,217	97,771	71,048
French ports....do.....	.....	25,328	25,328	32,415
English ports....do.....	4,546	1,477	6,023	8,156
Rye flour, from Baltic ports....do.....	147,460	220,028	367,488	392,593
Rolled oats and oatmeal:				
United States Atlantic ports, bags, cases, and casks	7,675	126,545	134,220	115,413
Baltic ports....bags, cases, and casks...	.....	2,330	2,330	1,280
English ports....do.....	133	840	973	1,179

It should be noted that a large share of the Rotterdam imports of American wheat flour was transshipped to Amsterdam, and also that part of the arrivals of rye flour from Baltic ports passed on in transit to the Rhine.

Imports of wheat and rye flour from Belgium are not included in this statement, no reliable particulars being obtainable.

Wheat-flour bags contain 50 kilograms (110 pounds); rolled oats, the same; and rye-flour bags, either 50 or 100 kilograms (110 or 220 pounds). Rolled-oats cases and casks have no fixed weight.

The official statistics of imports of wheat flour, wheat, and maize into the Netherlands, in tons of 1,000 kilograms (2,205 pounds), are:

Whence imported.	Wheat flour.			Wheat.		
	1901.	1900.	1899.	1901.	1900.	1899.
	Tons.	*Tons.*	*Tons.*	*Tons.*	*Tons.*	*Tons.*
United States.....	128,520	105,495	124,573	633,988	215,922	406,493
Belgium.....	30,645	21,603	25,913	76,365	64,120	79,869
England.....	160	302	320	.....	.....	.....
Hamburg.....	2,324	2,857	3,329	.....	.....	.....
Prussia.....	10,482	10,808	10,218	16,365	47,514	18,250
Roumania.....	.....	.....	.....	91,405	94,492	20,602
Russia.....	93	103	79	547,108	202,424	145,763
Other countries.....	8,283	12,729	10,065	149,316	379,881	264,782
Total.....	180,507	153,897	174,497	1,314,717	1,004,423	935,756

Whence imported.	Maize.		
	1901.	1900.	1899.
	Tons.	*Tons.*	*Tons.*
United States	272,533	508,061	568,459
Belgium	45,507	55,658	37,415
Prussia	31	116	34
Rio de la Plata	49,333	26,251	42,037
Roumania	72,412	23,999	51,127
Russia	27,232	23,853	38,198
Other countries	6,413	508	249
Total	473,461	638,447	737,519

The Netherlands ranks in importance second only to Great Britain as a market for American flour. Besides, there is not at this time in all the world any other market for the grade of American flour sold here. I have this on the authority of one of the first millers of Minneapolis.

There is an estimated deficit in the Dutch budget for 1902 of over $5,000,000. This unfortunate state of the budget is coincident with the coming into power of the coalition ministry, one of whose tenets is protection to native industry. The agitation to increase tariff rates is caused by the pressure on the revenues. The change would not be primarily for the protection of domestic millers, though it would naturally receive the support of this interest. It is not, as has been suggested in the United States, part of a continental plan adverse to imports from the United States.

All well-informed opinion on both sides of the ocean is agreed that the imposition of a 10 per cent duty upon our flour, with wheat admitted free, would kill—as a similar procedure in Belgium did some years ago—our prosperous and growing flour trade with the Netherlands.

FRANK D. HILL,
Consul.

AMSTERDAM, *April 30, 1902.*

AMERICAN TRADE METHODS IN THE NETHERLANDS.

Mr. S. Calisch, commission merchant at Amsterdam, writes this office as follows, under date of April 4, 1902:

Some time ago, I asked for an agency for the sale in the Netherlands and colonies of vehicles, harness, and saddles. Although the firm in the United States was not willing to establish an agency, they were inclined to allow 5 per cent commission for all orders sent to them. I received several illustrated catalogues, which I sent to different buyers, being sure that the business could be increased

by mediation. I am sorry, however, to say that all catalogues state prices, and that notwithstanding my request for catalogues without prices they sent no catalogues without them. One of their terms reads "Full amount to be inclosed with order," and this prevents all business not only in the Netherlands, but, I dare say, on the whole Continent. Up to now, I have had success, and I have obtained some good orders for their articles, which certainly would be followed by larger ones, provided they were inclined to sell on fair terms. For the small commission I can not take any risk, but am willing to pay half of the order against bill of lading, the other after delivery of the goods. There is no firm that likes to buy and pay the whole amount without seeing whether the goods are delivered as ordered and in good condition.

The objections urged above respecting terms exacted by American manufacturers are so well understood as hardly to justify repetition; yet every consul hears them iterated daily. It is not credit that people here wish—although they are accustomed to that as a matter of course—but a more liberal way of doing business. Cash against documents, or the much more stringent requirement embraced in the foregoing—cash against order—seems to people here to be a sort of stand-and-deliver method of doing things, and is regarded as unreasonable.

But will our manufacturers accord other terms? The representative of one of the largest furniture companies in the United States, recently at Amsterdam, replied in the negative when the question was asked by the writer.

FRANK D. HILL,

AMSTERDAM, *April 10, 1902.* *Consul.*

TRADE OPPORTUNITIES IN FRANCE.

SHOES.

The American shoe for men is far superior in appearance and comfort to the French article, which is hard and boxy. The former is seldom found for sale outside of Paris and a few of the principal cities. Austria and Belgium furnish the largest part of the imports.

If retail shoe stores under American management were opened in this country, with a wholesale emporium to supply them, a profitable business might be carried on. The greatest difficulty would be the competition of the lower priced French article, which heretofore has kept American foot wear from entering this market as generally as it has some other European countries. The tariff on shoes is 1 franc (19.3 cents) per pair; on boots for men and women and on top boots, 2.50 francs (48.25 cents). American fine boots and shoes of all kinds enter Germany for $16.66 per 100 kilograms (220 pounds) and Austria for $14.21. Shoes weighing, say, 800 grams (1.8 pounds) per pair pay $24.125 per 100 kilograms at French ports, a

considerably higher tariff than in either of the above-mentioned countries. The lower, or cheaper, grade of American shoe can not be sold in France.

The French shoe, especially the Norman product, is a distinct type. In this city there are so-called American shoes exposed for sale, but a glance shows that the French manufacturer has signally failed in his imitation.

STEAM SHOVELS AND DREDGES.

American firms manufacturing steam shovels and kindred utensils have made inquiries as to the possibility of a market for their products in this district. The only water way is the Seine, which last winter was supplied with three new dredges of French manufacture. The water-ways bill voted last year provides for improvements at a cost of $12,100,000. The project for new canals includes one connecting the northern coal fields with Lorraine, another from the Loire to the Rhone, and a third from Marseilles to the Rhone, at a cost of $88,600,000; and improvements of the ports of Dunkirk, Havre, Nantes, Bordeaux, St. Nazaire, and other places, at a cost of $31,800,000. At present, the number of kilometers of French canals in operation is nearly 5,000, and the length of navigable rivers 7,600 kilometers, making the total length of navigable canals and rivers nearly 12,600 kilometers, or, in round numbers, 8,000 miles.

STONE CRUSHERS.

The French system of public highways, extending to every section of the Republic, is not surpassed by that of any country in the world. All stones are crushed by hand with hammers, the workmen often being seated. It is a long and tedious process. As early as 1867, the improved macadamized highways of France had a total length of 200,951 miles, while the length of unfinished highway was then stated at 174,667 miles, most of which is now finished. But the use of crushed stone is not confined to these roads; it is employed in buildings, in walls, for railroad ballast, etc. If an American manufacturer could secure a small municipal contract, which would permit the utility of a steam stone crusher to be demonstrated in the quarries here, it would, no doubt, bring good results.

ELEVATORS.

While it is true that the French do not erect such tall buildings as Americans, there is nevertheless need for elevators. There are only two in Rouen, a city of over 150,000 people. Buildings in Norman cities are seldom more than six stories in height, the average, perhaps, being three or four.

LIGHTNING RODS.

Since coming here eighteen months ago, I have not seen a lightning rod. Such a condition, coupled with the fact that Frenchmen favor insurance, would seem to indicate a good field. The article is not mentioned in the tariff schedule, and the duty could be determined only by submitting a sample. It would be almost impossible to sell such goods, however, without personal effort.

OTHER ARTICLES.

The following articles might also be mentioned, which if not unknown are comparatively little used: Chewing gum, washboards, portable hot-air bath cabinets, oatmeal, hominy grits, corn for table food, molasses and sirup.

THORNWELL HAYNES,

ROUEN, *April 21, 1902.* *Consul.*

SUGGESTIONS TO AMERICAN EXPORTERS TO FRANCE.

Improper introduction often causes prejudice against American goods. In this city, American machinery was recently installed in a manufacturing concern. All the details were carefully looked after, and the circumstances of climate, care, use, etc., taken into consideration, under the personal supervision of Americans. The success of this installation promises a further market to that class of articles. In a neighboring city, an American brick-drying machine was improperly constructed. The result was a failure, a loss of reputation, and a closing of that market, and perhaps others, to the sale of the product mentioned. The same is true of American locomotives when ignorantly handled, of coal when improperly used, of agricultural implements when not correctly employed, and so on. Not only must deference be paid to the customs of a country when making a sale, but the goods must be delivered in proper shape. No American exporter can build up a permanent and successful business in France unless he works for the success of his customers on this side.

Expositions of American goods in the principal cities of France would do much to extend our trade here. A Frenchman must have ocular and tangible demonstration of the validity of every claim made for an article. All the United States consuls in France reiterate in their reports the uselessness of sending circulars, letters, etc., in English. The director of a firm making heating apparatus told me

recently that he had learned that English circulars were worth nothing, that French circulars were a little better, that commercial travelers understanding French were still better, and that an exposition of goods fulfilled all requirements. He represents an American company which regarded this country—where only coal stoves and grates were known—as a splendid field for trade; and not content with an exposition of its products, has established a large factory of up-to-date heating appliances near the center of France. The raw product comes from America, and the finished goods are gradually being sold all over the country. So far, this enterprising firm has a monopoly of the business and is succeeding wonderfully. Only earnest, persistent endeavor will win in face of Old World conservatism, and this kind of endeavor means brains and money; but in the end it brings its due reward.

Other means to facilitate and increase our export trade to this country are to include all costs, such as freight and insurance, in quoting prices; to give long credits; to adhere strictly to the metric system of weights, measures, and money values; to try to sell the buyer what he wants, regardless of what the seller may think he ought to have; to give the most careful attention to the manner in which the goods will reach the customer; and to have every regard for local requirements.

THORNWELL HAYNES,

ROUEN, *April 22, 1902.* *Consul.*

CANAL IMPROVEMENTS IN FRANCE.

A few months ago, the Government of France appointed a commission to consider the expediency of beginning work on the long-talked-of project of deepening, broadening, and connecting the various water ways of France. It proposed for this purpose an expenditure of 610,820,000 francs ($117,888,260). The commission reported favorably upon the project, but recommended that the sum be increased to 663,450,000 francs ($128,045,850). A bill to carry out the plan was passed in the lower House, after the amount of money involved had been augmented to 699,450,000 francs ($134,993,850). The Senate may add to or subtract from this sum. Engineers express the opinion that the improvements projected will cost about 30 per cent more than the sum appropriated, and that the gross expenses of the work will be 900,000,000 francs ($173,700,000), if not 1,000,000,000 francs ($193,000,000).

This project of internal improvement is now the subject of careful discussion by the press and by a number of societies of political economy in France. Mr. Paul Leroy Beaulieu, in the Economiste

Français, opposes the scheme on the ground that it would create an unnecessary competition with railroads, which are able to carry all the freight offered and are reducing rates as fast as possible. He adds:

> It is clear to the least observant that, with the water ways, we have two systems instead of one—two great systems to support, to maintain in working order. No manufacturer would ever think of building a concern to compete with his own establishment, both having the same objects in view. * * * Should it happen that one line is overworked, then it would be in order to duplicate it by a navigable water way. Even then, it would be wise to consider whether a new track ought not to be added to the line of railroad. The United States have shown that railroads may have a great traffic and an immense accumulation of freight without being encumbered to such a degree as to materially interfere with business. In France, on account of the absence of coal, our railroads ought very rarely to suffer from freight congestion.

Prominent railroad men in Lyons are confident that the canal project will be adopted by the Senate. Where railroads and water ways now compete in France, about two-thirds of the traffic of heavy freight goes by rail and only one-third by water; yet the freight is from 20 to 25 per cent cheaper by water. The reason of this preference for rail transportation is that it brings the freight nearer to the mills and factories.

The strongest argument against the proposed water way is the quasi partnership between the railroads and the State. The interest sum guaranteed by the Government has been declining for some years. In the appropriation bill for 1894, 149,900,000 francs ($28,930,700) was appropriated for this purpose. In 1895, this sum had fallen to 78,300,000 francs ($15,111,900); in 1896, to 55,250,000 francs ($10,663,250); in 1897, to 38,000,000 francs ($7,334,000); in 1898, to 20,000,000 francs ($3,860,000); in 1899, to 17,000,000 francs ($3,281,000), where it remained until 1901. This year, it is 44,000,000 francs ($8,492,000). It is provided that when the roads earn more than the interest specified in their charters two-thirds of the surplus goes to the State and one-third to the stockholders. It is argued with considerable force that if the State creates a competitor for the railroads they will be compelled to ask for a larger sum for dividends than they ever before needed.

According to their charters, all the railroads of France will revert to the State in fifty-five or sixty years. Their franchises expire at that time, and all that will remain the property of the company will be the rolling stock, the depots, and stations. The estimates of the value of these roads vary from 4,000,000,000 francs ($772,000,000) to 4,275,000,000 francs ($825,075,000). The companies, by the terms of their charters, are obliged to call in and pay up their outstanding bonds and pay up all debts, so that the property shall be entirely

free from obligations at the expiration of the charters. It is estimated that by that time the railroads will be worth 20,000,000,000 francs ($3,860,000,000). Statesmen look upon this sum as a great source of wealth, and the desire to leave it unimpaired is responsible for much of the opposition to the proposed system of water ways. Yet it is altogether probable that the river improvements will be commenced within the next year. The Ponts et Chaussees, the engineering department of the State, will draw up the plans for the improvements, and sealed proposals will be called for from all the countries of the world. The River Loire and portions of the Rhone, Seine, and Saône will be dredged and deepened, and a number of small canals will be cut connecting cities and rivers.

Americans who are engaged in such enterprises should have someone in Paris to look after their interests in this connection.

JOHN C. COVERT,
Consul.

LYONS, *April 12, 1902.*

NEW FRENCH SHIP-SUBSIDY BILL.

[Supplementary report.]

The new French ship-subsidy bill, which was recently passed by the Chamber of Deputies, of which a report in detail was made from this consulate,* has been acted upon by the Senate. The salient features of the measure were retained by the upper Chamber, while the changes which were made by the latter body have been accepted by the Chamber of Deputies. The act was declared a law of France in a presidential decree dated April 7, 1902, and published in the Journal Officiel of April 10, 1902. The most important changes in the bill, as given in the consular report above referred to, were:

The life of the law was reduced from fifteen years to ten years, and the term during which vessels shall enjoy the benefits of the new act was fixed at twelve years.

The quinquennial periods set forth in Article III were reduced to four years.

The age of foreign or French built vessels sailing under the French flag entitled to the shipping or navigation bounties was made twelve years instead of fifteen years.

There is no diminution in the shipping bounty (compensation d'armement) above 7,000 tons. In other words, vessels measuring more than this tonnage receive the same bounty as those of 7,000 tons gross register.

* Published in ADVANCE SHEETS OF CONSULAR REPORTS, No. 1267 (February 17, 1902), and in CONSULAR REPORTS No. 259 (April, 1902). See also ADVANCE SHEETS No. 1314 (April 12, 1902).

The minimum navigation bounty granted to steamers was fixed at 1.50 francs (28.95 cents), instead of 75 centimes (14.475 cents). Steamers over 7,000 tons receive the same bounty as those measuring 7,000 tons. For sailing vessels, the navigation bounty is decreased after 600 tons, instead of 800 tons, and up to 1,000 tons. After 1,000 tons, the bounty remains the same as for sailing vessels measuring 1,000 tons.

The 5 per cent deducted from the shipping and navigation bounties is retained for the benefit of all French-registered seamen instead of for the crews of the particular vessels receiving the bounties.

The two bounties are reduced 5 per cent for steamers which on their trial trips do not make 12 knots per hour, half loaded; and are reduced 10 per cent for steamers which do not make 11 knots in their trial trips when half loaded.

The date when sailing ships, in order to enjoy the benefits of the old law of 1893, could be contracted for was extended from March 1, 1902, to May 1, 1902, provided that a declaration had been made at the custom-house before February 1, 1902, and that the vessels receive their French register before January 30, 1903.

The total tonnage of vessels contracted for after January 1, 1902, which can take advantage of the above provision is fixed at 45,000 gross tons. The maximum amount which can be paid out of the treasury for the shipping and navigation bounties granted under the provisions of the present law shall not exceed 150,000,000 francs ($28,950,000), of which the maximum amount for sailing vessels shall not exceed 15,000,000 francs ($2,895,000).

The maximum amount of construction bounties shall not exceed 50,000,000 francs ($9,650,000) for the 300,000 tons of steamers and 100,000 tons of sailing vessels provided for in the present law. Each year, the construction bounty can not be paid for more than 50,000 tons of steamers and 15,000 tons of sailing vessels, not including the vessels under construction before March 13, 1902. If the maximum of 50,000 tons should not be reached in any year, the difference will be carried over from year to year.

A. M. THACKARA,

HAVRE, *April 10, 1902.* *Consul.*

FRENCH LAW ABROGATING THE USE OF SACCHARINE.

The French Legislature recently voted a law prohibiting the use of saccharine and all other artificial sweetening, with the exception of such kindred substances as are used in pharmacies.

Mr. E. Eloir, a scientist of Lille, maintains that saccharine, the so-called "sugar of the poor," can be replaced advantageously by

good crystallized sugar, the direct product of French refineries, and insists that this should be exempt from all duty.

As the cost of sugar production is greater in France than in Germany and Austria, as labor and transport command higher rates, Mr. Eloir urges an increase in duty of 5 francs per 100 kilograms (96 cents per 220 pounds) upon foreign sugars imported into France.

The retail prices of sugar per kilogram (2.2046 pounds) have been:

Description.	Prior to October, 1901.	Since October, 1901.
	Cents.	*Cents.*
Loaf sugar	23	22
Powdered sugar	23	23
Crystallized sugar	21	19

W. P. ATWELL,
Consul.

ROUBAIX, *April 8, 1902.*

THE MICROPHONOGRAPH IN FRANCE.

Consul-General Gowdy sends from Paris, April 4, 1902, copy of a pamphlet descriptive of a telephone for the deaf, which was requested by a Kansas physician and has been transmitted to him. The following extracts are translated from the pamphlet:

The microphonograph, a combination of the microphone and phonograph, was invented by M. Dussaud, professor of physics in the École de Mécanique, Geneva, Switzerland, and afterwards perfected and brought to its present state by M. Jaubert and M. Berthon, the latter the manager of the Industrial Telephone Society, Paris. This instrument permits the indefinite repetition of a sound with the same intensity, tone, and degree of loudness, and, at the same time, the apparatus lends itself to the production of the most varied sounds, deep-toned or shrill, feeble or intense, so that the operator can by trial find the tone which will best impress the subject. The idea of the microphonograph is to increase the intensity of sound, while regulating and graduating it at will; in short, to do for sound what the microscope does for objects. The advantages which it has relative to the sounds created over those of the phonograph alone are: (1) They are considerably strengthened; (2) they are more distinct, with scarcely any nasal tone; (3) they can be regulated at will in their intensity, so that the instrument constitutes at the same time the most sensitive audiometer; (4) they can be heard by many persons at the same time; (5) they can be heard at great distances. The acoustic exercises by means of this instrument make the education of deaf mutes possible at a very early age. The exciting of the auditory nerve leads directly to the reviving of the sense of hearing and stimulates the utterance of words. Most encouraging results have already followed the use of the microphonograph. For scientific and commercial information regarding this instrument, address the Société Industrielle des Téléphones, 25 rue du 4-Septembre, Paris, France.

APRICOT KERNELS IN FRANCE.

Several inquiries have been received at this consulate from American dealers who wished to find a market for apricot kernels. The meat of apricot pits is largely used here, as elsewhere, as a substitute for almonds, being cheaper and slightly more acrid. Confectioners use it in powdered form, which is quite indistinguishable from almond powder. Chemists employ it both in powder and extracts. Bakers make "almond paste" of the powdered pits. It is used also in the manipulation of certain wines.

The consumption of apricot pits in all these forms in this district must of necessity be very large, and it is not strange that American dealers should look to a region noted for the production of all the articles in the preparation of which these are used. Unfortunately for the hope of finding a market here, the domestic supply is very great and the neighboring countries—Spain, Italy, Algeria, and, in short, almost the whole Mediterranean littoral—are the home of the apricot, and, since attention has been lately more strongly drawn to the various uses to which the pit is adapted, afford a constantly increasing supply.

At present, this supply seems to be sufficient for home consumption and also for a considerable export trade, including, among other countries, some shipments to the United States.

ALBION W. TOURGÉE,
Consul.

BORDEAUX, *April 16, 1902.*

WINE EXPORTS FROM BORDEAUX.

The statistics of exportation from the port of Bordeaux for the year 1901 have just appeared. They reveal some interesting facts.

The entire exportation of "wines of the Gironde" for the years 1900 and 1901 was as follows:

Description.	1901.		1900.	
	*Liters.**	*Quarts.*	*Liters.**	*Quarts.*
In casks	67,718,831	71,558,469	69,521,023	73,462,865
In bottles	4,370,831	4,618,657	4,012,705	4,240,225
Total	72,089,662	76,177,126	73,533,728	77,703,090

* 1 liter=1.0567 quarts.

The decrease from 1900 was:

Description.	Quantity.	
	Liters.	*Quarts.*
In casks	1,802,192	1,904,396
In bottles (gain)	358,126	378,432
Actual loss	1,444,066	1 525,964

The general decline of exports of what are called "Bordeaux wines" from this port to all the world from 1900 to 1901 is therefore a trifle less than 2 per cent.

Other French wines exported from this port are:

Description.	1901.		1900.	
	Liters.	*Quarts.*	*Liters.*	*Quarts.*
In casks	965,318	1,020,052	1,403,368	1,482,939
In bottles	129,900	137,165	103,788	109,673
Sparkling wines	219,424	231,865	222,914	235,552
Total	1,314,642	1,389,082	1,730,070	1,828,164

The total exports of French wines from the port of Bordeaux were, in 1901, 73,404,304 liters (77,566,328 quarts); in 1900, 75,263,798 liters (79,531,255 quarts); making the total excess of all wine exports from this port in 1900 over 1901, 1,859,494 liters (1,964,927 quarts).

Under present conditions, any decrease in the exportation of French wines is a fact of very serious moment. There is more wine in the world to-day than ever before, and more in France than in any other country. Wine is really a triennial crop. It is grown one year and undergoes two years' of ripening and preparation before it is ready for the market. There is always a stock of three years on hand, and during recent years much more—how much more, it is impossible to say. No one whose judgment is entitled to any respect would hazard an opinion as to the wine in stock in the cellars of Bordeaux and vicinage three years ago—say, after the vintage of 1898. There was undoubtedly a great surplus. These are the wines of commerce to-day. By reason of the introduction of vines of American origin in reconstructing old vineyards and the planting of new ones, the yield from 1893 to 1898 had been very large. To this was added a heavy importation of foreign wines from 1887 to 1899, averaging about 10,000,000 hectoliters (264,000,000 gallons) a year. During this time, the exports of wine from France had been steadily declining, from 3,600,000 hectoliters (95,040,000 gallons) in 1876 to 1,200,000 hectoliters (31,680,000 gallons) in 1898.

After this came three notable years. In 1899, the yield was not so remarkable in quantity—only a good average—but of almost unprecedented quality. The yield of 1900 was of extraordinary amount and fair quality. In 1901, the yield was almost as large as that of the preceding year. During the entire year 1901, there was a crisis in the wine trade. The producers declared that prices had fallen below the cost of production. Everywhere was a clamor for relief. In some Departments meetings were held to demand national action for the relief of wine growers. The laws have been modified in their favor, and at the present moment a commission of inquiry is sitting, charged by Parliament to inquire into existing conditions and suggest other and more stringent measures for the relief of the wine growers of France, more particularly of its southern Departments. One would naturally say that all the conditions were favorable to a decided gain in exportation, to wit:

(1) Overproduction.

(2) Depression of home prices.

(3) The necessity forced upon producers to sell at any price to meet debts of already long standing, for which the stock in hand is no longer accounted sufficient security.

The falling off in wine exportation to the United States during the year 1901 is particularly notable. Of these exports, the following figures are given by the customs officials at this port:

Description.	1901.		1900.	
	Liters.	*Quarts.*	*Liters.*	*Quarts.*
In casks	740,184	782,152	859,863	908,617
In bottles	403,556	426,438	466,912	493,386
Total	1,143,740	1,208,590	1,326,775	1,402,003

This shows a deficit in 1901 of 183,035 liters (193,413 quarts) on the exportation of the year 1900, or 7.5 per cent.

This downward tendency seems not to be confined to the port of Bordeaux alone. The wine exportation from the whole of France to the United States during the first eleven months of 1901, as compared with a like period in 1900, was as follows, according to the values given by the French customs authorities: In 1901, 7,764,000 francs ($1,498,452); in 1900, 11,466,000 francs ($2,212,938); which is a deficit of 3,702,000 francs ($714,486), or more than 33 per cent of the figures of 1900.

What is the cause of this pronounced falling off in the exportation of French wines?

There are not many possible reasons. It may be that the French dealer has such confidence in the superiority of the wines he handles

that he is unable to believe the time will ever come when the world will not accept his terms and pay the price he demands for the nectar he sells; it may be that other countries are furnishing wines to the former customers of France to such an extent as to indicate both a general and particular depreciation of the trade; or it may be that greater enterprise on the part of sellers of the wines of other countries has reduced the comparative demand for French wines, especially of the class known as "Bordeaux wines." Certain it is that the relation between production of all sorts and the united domestic and foreign demand has come to be such that prices have been forced to a point where they are no longer remunerative to the producer.

The fact that there has been no law to prevent the sale of spurious or adulterated wines for export has, no doubt, done something to discourage importation in the United States, and the further fact that tastes and social habits vary from time to time may also have affected the demand. At all events, it is evident that two apparently irreconcilable conditions do actually coexist to-day, to wit:

(1) An unparalleled overproduction of wine and depression of prices in France.

(2) A distinct and positive decrease in exportation, especially to the United States.

The French Government has taken up with vigor the question of overproduction, and, by means of a special committee of twenty-two Deputies, has made perhaps the most thorough investigation ever attempted in any country of the causes and suggested methods of cure of an economic evil. This investigation was made by addressing a series of admirably prepared inquiries to all associations of wine growers, wine sellers, and other official bodies supposed to have special knowledge in the matter, asking their views upon the actual causes and possible cure of present conditions. These inquiries have developed beyond question the fact that the present surplus consists not only of natural wines resulting from succeeding vintages of remarkable character, but also from long-continued accumulation of fictitious wines which have come to be accounted as genuine, and from their cheapness have created a ruinous competition with the pure product. The universal demand of the genuine wine growers is for a more rigid enforcement of laws against the making as well as the sale of the spurious product.

By existing laws, no cognizance is taken of the manufacture of artificial or spurious wine, but only of its sale; and even then only on complaint of the purchaser. Unlike most other agricultural products, wine is salable only after two or three years. During this time, it lies in the cellar of the producer, and is exempt from any inspection or control of the Government. If the purchaser

fails to make complaint when he receives the wine, or the wine is exported direct from the cellar of the producer, there is no inspection of its quality or penalty for adulteration. The result is that these imperfect wines have continued, no one knows for how many years, to add to the surplus and enhance the apparent effect of overproduction.

The falsification of French wines is made possible chiefly through the use of what is known as the "alcohol of commerce," familiarly called "trois six" (666), instead of the alcohol of the grape developed by vinous fermentation. The two remedies most relied on for preventing such depreciation are (1) to discourage the use of the alcohol of commerce by putting a higher tax upon it than on the fruit alcohol—that is, making the base product cost more than the genuine; (2) to encourage the distillation of a part of the surplus wine and the production of brandy, thus relieving the congestion resulting from overproduction.

If this can be done in such a manner as to render the producer responsible for the character of his wine, by subjecting it to official inspection while yet in his possession, and the export of fictitious wine can be made equally penal with its sale in the home market, there would seem to be no reason why the exportation should not increase and the home market be so improved as to obviate the present complaint of a lack of profit to the producer of the lower grades of wine, which must always constitute the greater part of the production of any country. It is the disposition of the present stock of fictitious wines which seems to offer the greatest difficulty. Of course, wine made from grape skins, unrefined sugar, or molasses and water will always undersell any form of grape juice and still yield a profit. At the same time, this can not be distilled and produce eau de vie of desirable quality. While it is possible, therefore, to prevent any considerable future production of spurious wines, the disposition of the present stock is a very serious question.

A curious fact in connection with this subject is that the firm which is by far the largest shipper of wine through this consulate (its exports amounting to from two-thirds to three-fourths of the wine exports declared here) has increased its trade by more than 20 per cent during this very period, when the total exportation has fallen off so largely. This notable exception proves that whatever may be the cause of the decrease in wine exportation from this port to the United States, it is not one that persistent enterprise and the confidence inspired by honorable dealing can not overcome.

ALBION W. TOURGÉE,
Consul.

BORDEAUX, *April 1, 1902.*

BATHING ESTABLISHMENTS IN LYONS.

The following facts are submitted in answer to several letters requesting information about baths for the people in France.

In Lyons, there are many bathing establishments on the Rhone and Saône in which one can take a good swim for 6 cents; 4 cents more is charged for bathing drawers and towels. Ordinary bath houses, such as are found all over the civilized world, are common in Lyons, where a good bath can be had for 6 cents without and 8 cents with towels and soap.

In 1898, a concession was given to a Lille company to build small bath houses on the public squares of this city, eight of which are now doing business here. They are of porcelain, each 20 feet long by 14½ feet wide and 12 feet high. Inside are six stalls, each of which is divided into two compartments by a waterproof curtain, on one side of which is a dressing room containing a mirror, comb and brush, clothes rack, chair, and spittoon. The other side is provided with an electric bell, soap, and washstand, with warm and cold water and all the appointments necessary for a good shower bath, the water falling from above or from the sides, according to the fancy of the bather. The limit of hot water given to each bather is a little over 10 gallons; no limit is fixed to the use of cold water. The furniture of the apartment also includes an iron basin for a foot-bath. In winter, these little stalls are never allowed to become cold, and in summer they never become very warm. Under the bath house is a cellar 6 or 7 feet deep, in which are the coal, the boiler, a continuously heated thermosiphon, and the appliances for heating and driving the water.

The price of a shower bath in these little concerns is fixed, in the act authorizing them, at 3 cents, towels and soap included. In no case is the woman in charge permitted to ask more or to accept a gratuity. This last regulation is never honored by observance when occasion is offered for its transgression. The towels must be 80 centimeters long and 50 centimeters wide (31½ by 19¾ inches). The rules require the disinfection of every towel after it has once been used.

The company that manages these bath houses receives from the city of Lyons a subsidy of 20,000 francs ($3,860) per year and the free use of the ground for thirty years, at the end of which time the establishments are to revert to the municipality; but if, at the end of ten years, the number of persons using the baths in the city

is less than 200 per day, the experiment will be considered a failure and the city will have the right to cancel the contract, first giving the company six months' notice.

JOHN C. COVERT,
Consul.

LYONS, *April 17, 1902.*

THE MEAT TRADE AT NANTES.*

Nantes has a population of about 200,000. It is an important port, and there is not only considerable meat consumed by the permanent residents of the city, but also by the vessels lying in the harbor.

All live stock and dressed meat brought into Nantes must first be taken to the city abattoir, or slaughterhouse, where it is inspected. The inspection staff consists of a director and two assistants, the former being an experienced veterinary surgeon. When any dispute arises as to the acceptance or rejection of meat, the matter is referred to the director, whose decision is final. Inspection is free.

The sale of mule and horse meat is confined to special shops, of which there are five in Nantes. Pork is also sold in separate shops. In addition to the animals slaughtered in the city, there is a large quantity of meat dressed in the country and brought here; in 1901, this amounted to the following:

Beef	pounds...	2,110,671
Veal and mutton	do.....	465,557
Lamb	do.....	11,121
Lard	do.....	245,960
Dressed hogs	number...	15,000

Upon this class of meat, the city imposes the following octroi taxes per 100 kilograms (220 pounds):

	Francs.
Beef	13=$2.50
Sheep and calves	14= 2.70
Pork	11= 2.12

There is also an additional duty collected by the city, amounting to 2 francs (38.6 cents) per 100 kilograms for beef and 20 francs ($3.86) per 100 kilograms for pork.

Fresh meats retail at the following rates:

		Cents.
Beef	per pound...	10 to 45
Pork	do.....	16 to 26
Veal	do.....	12 to 28
Mutton	do.....	12 to 25

*In reply to inquiries by the editor of a New York trade journal, who has received advance copy.

Meat is delivered by boys employed in the various shops, who, in the morning, go about the city soliciting orders. The American meat wagon is unknown here. The shops are arranged very much as in the United States. Some of them have refrigerators, but many have no way of preserving the meat. On account of the sea air, meat does not spoil as quickly as in many parts of America; there are also very few flies to contaminate it.

Fowls are not on sale in the meat shops; they are sold in the market or are delivered at the door.

Of meat imported from other countries, there may be mentioned the large quantity of cured hams from England. These hams retail at about 28 cents per pound. Certainly, American hams could be sold to the consumer at a lower price.

The director of the abattoir, M. Louis Pingrié, is agitating the building of a cold-storage plant in connection with that establishment.

JOSEPH I. BRITTAIN,
NANTES, *March 26, 1902.* *Consul.*

THE PRICE OF PORK IN GERMANY.

During the past few months, the organized butchers of Germany have been clamoring for the abolition of the prohibitive tariff on pork. This meat is an important article of food among the poorer classes of the Empire, and its steady rise in price has resulted in great hardship to them. Prices are higher now than they have been for twenty years, and if the present scarcity of pork continues there will undoubtedly be a further advance.

The following table shows the wholesale price per 100 kilograms (220 pounds) of the best quality of live hogs during 1901 and 1902:

City.	1901.	1902.
Berlin	$13.24	$14.61
Breslau	12.65	13.63
Magdeburg	12.42	14.90
Dresden	13.72	14.99
Hamburg	12.88	14.55
Cologne	14.16	15.53
Frankfort	15.17	16.07
Stuttgart	14.49	16.25

In the retail trade, the increase is also very pronounced

Retail price per kilogram (2.2 pounds).

City.	1901.	1902.
	Cents.	*Cents.*
Berlin	29	31
Danzig	29	31
Chemnitz	31	36
Leipzig	29	31
Stuttgart	33	36
Munich	30	31

In Chemnitz, where depression among the industrial branches has been very pronounced, the retail price of pork has increased 25 per cent.

J. F. MONAGHAN,
Consul.

CHEMNITZ, *April 11, 1902.*

THE SPRING CROP OUTLOOK IN GERMANY.

The winter of 1901–2 in Germany has been on the whole one of the most favorable of recent years for winter crops and the general interests of the agricultural population. The exceptionally bright and pleasant autumn was followed by mild weather, with very little snow until toward the middle of February, when a snowfall of several inches overspread most of northern Germany and remained four or five weeks, so that the wheat and rye fields that had suffered so severely during the winter of 1900–1901 came through the critical weeks of early spring with little or no injury from frost. The official reports showing the condition of crops throughout Prussia on the 15th of April have just been published and give on the whole a favorable impression. The status of each crop, compared with the report of the same date one year ago, shows the following contrast, it being remembered that under the Prussian system of crop notation 1 indicates a full maximum yield, 2 good, 3 average, 4 scant, and 5 failure, while the intermediate gradations are expressed by decimal fractions of these numbers—the higher the figure the worse the indicated condition of the crop:

Crop.	April 15—	
	1902.	1901.
Winter wheat	2.3	3.9
Winter rye	2.3	3
Clover	2.7	3.3
Lucern	2.5	2.9
Meadows and pastures	2.8	3

This is favorable, but it is not all. The most significant facts are found in the difference of winter-killed rye and wheat lands during the two years. On April 15, 1901, 26.6 per cent of all the winter-wheat fields in Prussia had been found so damaged by the long, severe, snowless winter that they had been condemned and plowed up for potatoes and other spring crops. This year, the proportion of wheat so destroyed is only 0.15 per cent of the whole area sown. Of winter rye, only 0.09 per cent has been lost through freezing and from mice and other causes, against 3.7 per cent reported on April 15 last year; so, too, with clover, lucern, and grass. All have come through the winter practically without injury, and, although the spring has been exceptionally late, cold, and wet, there is thus far every prospect of a fair average year for the German farmer.

A complete statement of the Prussian crop reports at the middle of April for the past ten years gives the following interesting comparison:

Year.	Winter wheat.	Rye.	Clover.	Lucern.	Grass.
1902	2.3	2.3	2.7	2.5	2.8
1901	3.9	3	3.3	2.9	3
1900	2.8	3	3.1	2.8	3.1
1899	2.4	2.8	2.8	2.7	2.8
1898	2.3	2.3	2.3		2.5
1897	2.5	2.5	2.3		2.6
1896	2.3	2.3	2.7		2.5
1895	2.6	3.4	2.3		2.7
1894	2.3	2.3	3.4		2.8
1893	2.2	2.5	3.1		3

When it is remembered that 1894, 1896, 1899, and 1900 were years of fair average harvests, the indications of the present situation will be sufficiently obvious.

FRANK H. MASON,
Consul-General.

BERLIN, *April 22, 1902.*

GERMAN SUGAR INTERESTS SINCE THE BRUSSELS CONFERENCE.

Although it is now nearly two months since the convention abolishing, after a prescribed date, export premiums on sugar was signed at Brussels by all the leading European nations except Russia, it is not yet possible to estimate, even approximately, its effect upon the area to be planted with beets this spring, or the probable sugar product and consequent market prices of the coming year. For the reason that the convention does not take effect until the 1st

of September, 1903, and that meanwhile the different nations must each revise and enact a whole code of laws and regulations for the control of their sugar industries, there is nothing to indicate that the majority of beet growers—at least in Germany—will modify seriously their plans for this season's planting.

The announcement that the Brussels convention had, after so many previous failures, really agreed upon a plan to abolish export bounties came to the enemies of that measure with the shock of an unexpected surprise. The whole proceeding was recognized as a decisive victory for cane as against beet sugar—a conquest for the Indies, Hawaii, the Philippines, and Louisiana over Continental Europe. The Zucker-Industrie, the leading organ of the German sugar-producing interests, hastened to say that if the convention were carried into effect the result would be a blow to the sugar industry of Germany from which it would never recover.

> In the world's markets, our product will be overwhelmed by colonial sugars, which enjoy important and decisive advantages. Germany will be flooded with foreign sugars because our import duty is so small; the cartel will be rendered forever impossible; the price of beets must be reduced by at least 30 pfennigs (7.14 cents) per 100 pounds; beet cultivation, and with it agricultural prosperity, must inevitably decline.

Six days after the signing of the convention at Brussels, a mass meeting of representatives of the beet-growing and sugar-making industries was held in Berlin, at which much impassioned oratory was heard, but the general impression left by the conference was that of a merely general but vaguely defined opposition to any change in the present system, which in effect taxes sugar consumers in Germany to pay the cost of supplying Great Britain and the United States with German sugar at about half the price which—under the ministrations of the cartel—it costs at home. In the resolution which summarized the action of that meeting, it was stated that it was too early to estimate closely and accurately the full effect of the convention, but that as it had yet to receive the approval of the Reichstag and Bundesrath, as well as the imperial signature, there still remained opportunity for resistance, and to this the meeting pledged its loyal and united efforts.

It is recognized, however, that the agreement signed at Brussels will bring to European statesmen the end of a long financial nightmare; that it will give relief to sugar consumers everywhere and will require the Governments of France, Germany, Austria, Belgium, and Holland to set the beet-sugar industry back upon its own feet, to stand or fall by its own merit and in accordance with the measure of skill and foresight that may be embodied in the new legislation

which will replace the present system. This legislation will presumably be shaped to accomplish one or more of three principal results: (1) to sustain sugar production by promoting its consumption at home, (2) by enhancing through commercial treaties sugar exports to countries which—like Great Britain and the United States—are more or less dependent upon imported supplies, and (3) by restricting beet planting and overproduction of sugar.

Germany has heretofore exported, roughly speaking, two-thirds of her sugar product, and the problem presented to the statesmen of this country by the new conditions which are to obtain after the autumn of next year is complicated and serious. Beyond the readily assumed fact that the convention will be loyally carried out, nothing in the way of new legislation has been decided upon or more than vaguely suggested. The promotion of home consumption of domestic sugar through reduced retail prices involves naturally the question of duties on imported supplies. The present duty of 40 marks ($9.52) per 100 kilograms (220.46 pounds) is not changed in the new tariff act now under discussion, and it remains to be seen whether that rate will be considered sufficient after bounties have ceased. The necessities of the sugar situation will in all probability exercise a strong influence in respect to the new treaties of commerce which will have to be negotiated under the revised tariff, but beyond these general facts all is as yet mere conjecture. Meetings of cooperative beet growers and sugar companies are held from time to time to discuss plans and policies. There is in their deliberations more or less talk about reducing the area of beet planting, but, so far as the reports show, no definite agreement on this point has been reached. Bounties will be paid as heretofore until the end of August, 1903, and the question of area and production will therefore not reach the acute stage until the spring of next year. Under the heroic management of the cartel, sugar growing has been for years past the most profitable branch of German agriculture, and the farmers, the raw-sugar makers, and refiners who have thriven under the bounty system will naturally strive to make the most of it as long as it survives.

The officers of the raw-sugar manufacturers' section of the syndicate of the German sugar industry publish to-day in their official organ the following appeal to their members:

BERLIN, *April 25, 1902.*

To the Raw-Sugar Manufacturers:

The world's market price has declined to 6 marks ($1.43) for 88° raw sugar. The break in price during the past week is caused by the fact that the English import duty will not be increased, and, further, because the reduction in area of European beet planting is now estimated lower than hitherto. In well-informed commercial

circles, it is reported that the reduction will not exceed 6 per cent. If this estimate should prove correct, no recovery of the sugar market can happen within any specified time, and better prices are not to be expected during the coming campaign.

We therefore repeat our urgent advice to restrict the area of beet planting; especially we request the factories to refuse additional offers [of beets] and use their influence with farmers to reduce beet culture.

Meanwhile, the overproduction goes on unabated. Since the 1st of August, 1901, the beginning of the present season's campaign, there had been worked up in German factories, down to the end of March, 1902, 15,999,780 metric tons of beets, against 13,253,908 tons during the same period of the previous campaign, producing 1,995,799 tons of raw sugar, against 1,706,030 tons during the preceding year. The exports of German raw and refined sugars during March, 1902, reached 94,403 tons, as compared with 115,537 tons during the same month in 1901.

FRANK H. MASON,
Consul-General.

BERLIN, *April 25, 1902.*

Under date of May 3, Consul-General Mason adds:

The latest issue (May 2) of the Deutsche Zucker-Industrie, the authoritative organ of the sugar-producing interest in this country, contains an elaborate and carefully worked out prognosis of the effects upon the German beet-sugar industry of the Brussels convention, when supplemented by the scheme of revenue taxation which was introduced on April 29 in the Bundesrath and is now under consideration by the Reichstag. This forecast has been prepared by Herr Director Conrad Meyer, of the sugar refinery at Neufahrwasser, and, being published with editorial prominence, may be accepted as an authentic and typical statement of the case from the standpoint of the cartel, which is now the dominant factor in the economics of German sugar.

Mr. Meyer begins with the statement that a centner (110 pounds avoirdupois) of raw sugar costs to produce in Germany 8.50 marks ($2.02). This includes cost of 7½ centners (825 pounds) of beets at 70 pfennigs (16.6 cents) per centner, cost of manufacture, packing, freight to seaport, interest, office expenses, etc. The Brussels convention will bring this minimum cost of $2.02 into conflict with the cost of cane sugar in Cuba, Porto Rico, Hawaii, the Philippines, and other tropical countries, which is stated at 6.20 marks ($1.47) per centner, with the result of inevitable ruin to the former. He then proceeds to show by an elaborate statistical table that the aggregate beet-sugar production of Germany, Austria, and France, estimated

at 4,815,000 tons during the present campaign of 1901–2, will decline by 10 per cent per annum under the new conditions from September, 1903, and will reach in ten years (1910–11) a total of only 1,865,431 tons, while the cane and beet sugar product of North America—which includes the West Indies and the Pacific islands of the United States—will increase during the same period from 3,530,000 tons in 1902 to 8,323,550 tons in 1910–11.

The memorial then proceeds to forecast in detail the effects of the new conditions upon the German beet-sugar industry, as follows:

(*a*) Reduction of the home internal price of sugar to the present price in the general foreign market.

(*b*) Wholesale and general shrinkage of beet-sugar production in Germany, France, and Austria to one-half of its present dimensions—in brief, the ruin of that industry.

(*c*) Increase of sugar production in all beet-growing countries which are not bound by the Brussels convention, and in all cane-sugar-growing countries, including the United States.

(*d*) A probable slight reduction of the consumer's tax and consequently a small increase of sugar consumption in Germany, Austria, and France, which will not in any important measure serve to balance the loss to those countries of their sugar exports.

The overwhelming advantages which the cane-sugar industry will gain and derive from the enforcement of the Brussels convention are prefigured as follows:

1. The annual production of 2½ to 3 tons of cane sugar per morgen (about 1 acre) against a maximum of 1 ton per morgen of beet sugar, with a net cost of 6 marks per centner ($29.40 per metric ton) for beet sugar—that is, an advantage of 2.50 marks per centner ($10 per metric ton) in favor of cane sugar.

2. A 2-mark per centner higher price for cane sugar by reason of its superior flavor.

3. Direct and indirect premiums, including freight rebates, import bounties, and other Government favors granted to native sugars at least by England and the United States—say, as an average, 1 mark (24.8 cents) per centner. There will be, therefore, a total advantage of 2.50+2+1 marks=5.50 marks ($1.30) advantage in favor of cane sugar over beet sugar from the countries bound by the Brussels convention.

The memorial then enters into a discussion of what the German Government ought to do for its beet-sugar interest to replace and compensate for, in some degree, the advantages which it will inevitably lose under the terms of the convention. These demands are formulated as follows:

1. Reduction of the tax (Ueberzoll) not below 6 marks ($1.43) per centner (110 pounds) of sugar.

2. Fixing of the amount to be raised from the consumer's tax on sugar at a maximum of 75,000,000 marks ($17,850,000) per annum, in order that, with an increasing home consumption, the percentage of tax, and therewith the retail price, shall decline.

3. The putting of inland and export sugar on an exact equality, so far as railway freights are concerned.

4. Abolition of the manufacturer's tax (Betriebs Steuer).

5. Free reimportation of sugars of proven German origin from foreign countries and the free port of Hamburg.

6. Prohibition of saccharine in pharmacies.

The document further demands the repeal of all direct and indirect favors now granted to foreign countries in respect to sugar traffic, and closes with the following declaration:

The Brussels convention is absolutely unacceptable. The Government can not and dare not leave us in extremities. Above all else, it is necessary that the German sugar producers shall sink all minor differences and disagreements, and unite to combat, resolutely and unitedly, the greatest peril that has ever threatened them.

Such, in substance, are the arguments and the plan of campaign which the representatives of the beet-sugar industry in this country will employ in their efforts to save, through favoring legislation by their Home Government, something in compensation for the long-enjoyed advantages which they must yield under the provisions of the convention from and after September 1, 1903. How far the Government will go toward complying with these demands, the future only can reveal. The propositions which the Reichstag has now under discussion are concisely stated as follows:

ARTICLE 1. The second and third chapters (paragraphs 65 to 79) of the sugar taxation law of May 27, 1896, are hereby repealed.

ART. 2. The revenue tax on sugar (paragraph 2, section 1, of the statute) is fixed at 16 marks ($3.80) per 100 kilograms.

ART. 3. Sugar which before the date of enforcement of this law has been admitted to a bonded warehouse, and after the said date shall be released for traffic or transferred to a factory, shall be subject to repayment of the export bonification allowed thereon.

ART. 4. This amended law will take effect simultaneously with the convention entered into at Brussels March 5, 1902, by the German Empire and other nations.

THE BRUSSELS CONFERENCE AND RUSSIAN SUGAR.

The beet-sugar conference which recently closed its sessions at Brussels arrived at an agreement which, if indorsed by the countries represented at the conference, will abolish all bounties on sugar in 1903. It was also agreed, subject to the same indorsements, that the duty on sugar imported into each of these countries should be fixed at 58 cents per 100 pounds. Should this agreement be ratified—of which there is considerable doubt—the price of sugar would at once rise in the markets of the world, for the reason that the annual production would be largely curtailed. The current production of

beet sugar in Europe, according to the latest statistics, amounts to over 6,000,000 tons, which exceeds the consumption by more than 1,000,000 tons. The countries represented at the conference were Germany, Austria-Hungary, France, Belgium, Holland, Sweden, Denmark, and Roumania. When the result of the conference was announced, Roumania withdrew.

Russia was not represented at the conference, but the action of that body was closely watched here, and the results are even now agitating official circles. Russia has the largest area under cultivation in beet root in the world; is third in the number of factories; fourth in the quantity of beet root used and sugar produced; and stands lowest in the yield of roots and of sugar and third in the percentage of sugar to the weight of beet. The action of the conference must naturally have an effect on the sugar industry of Russia, though the official organ of the Government declares that "Russia will not enter into any kind of agreement which in any way attacks her tariff policy and the organization of her industry." Instead of such an agreement, a series of internal measures are recommended which, it is hoped, will render the sugar industry of Russia independent of the world's market.

The export of Russian sugar to western Europe is comparatively small, but its export to Eastern countries is large, and the countries represented at the conference will certainly endeavor to secure a share of this trade. It would not be difficult for Russia to use up its present export of sugar in the home market; the consumption per capita is very small and the cost to the consumer is abnormally high. The Government fixes the price at which sugar may be sold in Russia. According to Russian calculations, the sugar industry loses annually on the exports to western Europe over $3,000,000, or about 15 kopecks (8 cents) on every pood (36.1 pounds) of sugar produced. The profits on the sales in the home market are so large that this loss is not felt. An order from the Government lowering the price of sugar in the home market would speedily result in such improvement in the cultivation of the beet root and in the method of manufacture as would make the cost of production very much less than at present.

It is also stated in the official organs that the production should be curtailed, as it is abnormal. In view of the small consumption of sugar per capita in Russia, this statement excites surprise. The entire sugar surplus of this country does not exceed 16 to 17 per cent, and, at a lower price, it would be readily consumed by the population.

THOS. E. HEENAN,

ODESSA, *March 28, 1902.* *Consul.*

THE FORESTS OF PRUSSIA.

Of the 34,864,865.8 hectares (86,151,083.3 acres) of land in Prussia, 8,270,133.5 hectares (20,435,499.8 acres), or 23.7 per cent, are occupied by forests and orchards. More than one-third of the area of Hessen-Nassau, Hohenzollern, and Brandenburg is covered with forests. In Schleswig-Holstein, on the other hand, forests occupy less than one-fifteenth of the area of the province.

The ownership of the forests is as follows:

Ownership.	Area.		
	Hectares.	*Acres.*	*Per cent.*
State property	2,557,333.9	6,319,072	30.9
Crown property	72,420.4	178,950.8	.9
Forests partly owned by the State	1,135.3	2,805.3	.01
Communal property	1,103,646.2	2,727,109.7	13.3
Forests owned by institutions	97,972.1	242,089	1.2
Forests owned by companies	236,429.1	584,216.3	2.9
Private property	4,201,196.5	10,381,156.5	50.8

The areas occupied by deciduous trees and trees of the pine family are, respectively, 2,556,635.4 hectares (6,317,446 acres), or 30.9 per cent, and 5,713,498.1 hectares (14,118,053.8 acres), or 69.1 per cent.

Of the entire area of the Kingdom, 7.3 per cent is occupied by forests of deciduous trees and 16.4 per cent by those of the pine family.

These forests yielded in wood, in the year 1900, 24,380,908 cubic meters (861,050,775 cubic feet), in addition to 76,707 cubic meters (2,709,030 cubic feet) of oak tanning bark, 96,500 cubic meters (3,408,052 cubic feet) of oziers, and 51,243 cubic meters (1,809,729 cubic feet) of other wood, a total of 24,605,358 cubic meters (868,977,586 cubic feet), or 3 cubic meters (105.9 cubic feet) per hectare (2.471 acres) of the entire forest area.

GEORGE H. MURPHY,
Consular Clerk.

FRANKFORT, *May 3, 1902.*

HIGH RAILWAY SPEED IN GERMANY: ELECTRICITY OR STEAM?

It is now five months since the close of the experiments in high-speed electrical traction over the specially repaired and prepared railway line between Berlin and Zossen, and yet no official report of the attained results has been published. Individual experts, more or less directly interested in or connected with the trials, have contributed to various technical magazines here, in England, and in

America long and highly interesting reports of the equipment and methods employed. They have described with elaborate detail the motors, the construction of the cars, and the system of transmission employed, but nowhere in any of these reports does the writer venture to state his conclusions as to what the experiments have proved that was not known before, and what immediate effect they are likely to have upon railway progress. From all that can be ascertained, even the "Studien Gesellschaft," or specially organized company under whose management and support the experiments were conducted, has not prepared an official report for the information of its own members, nor has it yet been decided when, where, and under what new conditions, if at all, the trials shall be resumed.

It will be remembered that in former reports of this series (ADVANCE SHEETS Nos. 1103, 1154, and 1206*), the experiments were described as being made by a society specially organized for that purpose, which included as members the General Electric Company, of Berlin, and Messrs. Siemens & Halske, each of which firms furnished a motor car of its own construction, and several associated banks, which contributed the necessary capital; that the trials were made after long and careful preliminary study and experiment, and with the expectation of accomplishing a speed of 125 to 150 miles an hour. The trials finally took place during the latter half of October last year, beginning at 40 miles and gradually increasing in speed until on the 3d and 4th of November a speed of 150 kilometers (93.2 miles) an hour was attained. Then the experiments abruptly ceased, for the reason, as it was understood, that at the latter pace the strain on the track and roadbed was so great that they had to be repaired at night, and it was found that the limit of practical utility and safety had been reached with the facilities which were then at command.

The nearest approach to an official verdict on these trials which has yet been made was a paper read last evening before the "Verein für Eisenbahn Kunde" (an association of railway experts) by Geh. Baurath Moritz Lochner, an eminent engineer belonging to the Prussian State railway administration, and who in the experiments represented the Government, which had furnished the stretch of military railway line over which the tests were made. The address is withheld from publication, but, in substance, it confirms the conclusions of the other experts and may be summarized as follows:

The line, 28 kilometers (17.4 miles) in length, was laid with rails of the old Prussian standard, weighing 33.4 kilograms (70.14 pounds) per meter (39.37 inches), resting on metal ties. The track had been in use for a number of years, but prior to the experiments it had been

*CONSULAR REPORTS Nos. 253, 254, and 257.

put into perfect repair. At ordinary speeds, everything worked perfectly, and no trouble was experienced with rails or motor cars. The side swaying of the cars was scarcely noticeable, not sufficient to cause the slightest inconvenience to passengers. But as a speed of 130 kilometers (81 miles) was approached and exceeded, new and serious conditions were encountered. The rails and ties both proved too light for such a strain, the track began to give way, and the side swaying of the cars increased seriously. The highest speed attained was 160 kilometers (99.4 miles) per hour on two occasions, and, as a result of the conditions then developed, the experiments were discontinued, the net result being that up to a speed of 81 miles an hour they had been successful and satisfactory.

But as the pronounced purpose of the trials had been to make tests of speed up to 125 and 150 miles an hour, the actual result spread a chill of disappointment among electricians in this country. The trials had, indeed, shown that a polyphase alternating current, carried on triple overhead wires and taken off by trolleys, could be introduced as high potential into the rapidly moving car, and there reduced by portable converters to a safe and effective working pressure. The trolleys and the motors—one of which was hung on springs, the other set solid on the axle—worked to perfection. There was left no longer a doubt—if, indeed, any existed before—that, given a sufficient voltage, the current could be "got into the car" for any speed that might be desired. From the standpoint of the electricians, therefore, the experiments were technically successful.

The disappointment lay in the demonstrated fact that a large portion of the German railways could not, even if it were desired, be adapted to high-speed electrical traction without being practically rebuilt. While some of the leading lines have been relaid with rails of the new Prussian standard, 44 kilograms (97.4 pounds) to the meter, many of the principal and all the secondary railways are built with rails of the old and lighter standard, which failed so conspicuously at Zossen when the motor car surpassed the speeds which have been approximated in other countries by steam. They are laid to a large extent on metallic ties, which have not proved satisfactory under the severe test of high speed or heavy trains, and the rail joints likewise leave something to be desired from the standpoint of modern improved construction. The Prussian State railways are conservatively and economically managed; they yield a large and steady revenue, which the royal treasury needs from year to year, and it is clearly seen that any scheme of rapid, long-distance transit which would require the State lines to be torn up, their curves straightened, and their tracks relaid with heavier rails will have long to wait. In fixing a definite limit of

safety and utility to the present track system, the Zossen experiments have helped to relegate the hourly high-speed electric express cars from Berlin to Hamburg, Leipzig, and Breslau—which had been so confidently predicted by amateurs here and in America—to a remote and somewhat indefinite future.

DOES IT MEAN A REVERSION TO STEAM?

It is, perhaps, as a more or less direct corollary to all this that the German Society of Mechanical Engineers has again taken up the problem, and at a recent meeting voted a series of prizes, viz, 5,000, 3,000, and 2,000 marks ($1,190, $714, and $476), for the first, second, and third best designs for a steam locomotive and train which will be designed to form a unit in a scheme of rapid long-distance passenger service. The prizes are of merely nominal value, but the honor and prospective profit of winning one of them will be worth any and everything that the competitive effort may cost. The proposed locomotive and train are to be adapted to the Prussian railways as they now exist. The engine must be capable of hauling a train weighing 180 tons over a straight, level track at a speed of 120 kilometers (74.5 miles) per hour, and must be able upon trial to maintain this pace for three hours without stopping. Troughs for automatically replenishing the tank of the locomotive while in motion are to be provided at intervals of 75 miles. The cars are to include in their plan and construction all modern improvements and to be so designed as to form trains of three or four carriages, each capable of carrying one hundred passengers and their baggage, with full provision for their food, drink, and every necessary comfort during a journey of from five to ten hours. The cars must be so built that they can be run safely over a good track at a speed of 150 kilometers (93.7 miles) per hour. The cars must be planned and built of such material as to minimize the danger to passengers in case of derailment, collision, or other accident. Especial importance is attached to safe, effective, and easily controllable lighting and heating facilities. The drawings and specifications—which are to show clearly every detail of construction, weight, cost, and material used—are to be delivered to Mr. F. E. Glaser, secretary of the Association of German Mechanical Engineers, before noon of December 1, 1902, the plans of each competitor being marked with a cipher for identification after the awards have been made. The competition is restricted to German subjects and to locomotive and car builders of other nationalities who are permanently domiciled in this country.

Although it can not be ascertained that the State railway authorities are officially or directly connected with this enterprise, many of them are members of the Society of Mechanical Engineers, and

it is well understood that the competition has been decided upon as a reach in a new direction toward improvement in railway service. Four large and important cities—Hamburg, Leipzig, Dresden, and Breslau—besides several smaller towns like Hanover, Brunswick, Halle, Magdeburg, Chemnitz, Görlitz, and Stettin, are within a run of four hours by ordinary express trains, of which there are three or four daily in both directions. If, instead of, say, four daily trains of ten or twelve cars each, running from 30 to 40 miles an hour, the service were divided by day into hourly trains of three cars, carrying 100 passengers, and running 50 to 60 miles an hour, it is clear that the public would be far better and more conveniently served. This much, at least, could be done with comparatively small expense and with but little change in the existing lines, which are generally well surfaced and in good condition. Northern Germany is, for the most part, a vast level plain only a few feet above the level of the North Sea. Over this area, railway grades are generally slight and tracks for the most part straight, level, and well adapted for much higher rates of speed than have yet been undertaken. It is generally assumed and understood that, by one method or another, the facilities for travel between Berlin and the other large cities are to be improved in respect to both speed and convenience. It now remains to be seen which direction—whether through the use of electricity or steam—these improvements will take.

FRANK H. MASON,
Consul-General.

BERLIN, *April 9, 1902.*

GERMAN PROGRESS IN ELECTRIC LIGHTING FOR RAILWAY CARS.

In a former report of this series (CONSULAR REPORTS No. 246, March, 1901, pp. 296–299*) some account was given of the methods employed by the Prussian State railway administration for lighting postal and passenger cars. The subject had been raised to one of acute public interest by a disastrous accident at Offenbach-on-Main, in which the crushed carriages had been burned, with their wounded inmates, by the escaping gas from a reservoir of the Pintsch system, and the status reported was that electric lighting by the Böse accumulator system was then in use on nearly all German postal cars, and the Stone electric apparatus had been experimentally installed on an express train in regular service between Berlin and Cologne.

During the fifteen months since that report was written, the Prussian railway engineers have continued their experiments with

*ADVANCE SHEETS No. 929.

various forms of electric lighting, and the net result of these trials was reported in a highly interesting address by Chief of Construction Wichert, delivered before the monthly meeting of the Association of German Mechanical Engineers on the evening of April 22. The meeting was attended by representatives of the imperial railway bureau and the Department of Public Works, and was in all respects a representative occasion. In his report Herr Wichert traversed descriptively the experience of the Prussian administration with the several methods of car lighting, from candles to electricity, and then entered in detail into the advantages and difficulties which had been found in practice with the different systems of current supply, whether by storage batteries charged at permanent stations, generators located in each car and worked from an axle of its running gear, or one such generating plant located in a baggage car and serving an entire train by means of conductors connecting the different carriages.

From the standpoint of the technical engineer, the axle-driven dynamo, located in each car and making it an independent unit, always ready and capable of a run of any length or duration, is the ideal system. It requires, in addition to the dynamo, only a small auxiliary storage battery to feed the lights while the car is at rest, and a regulator to equalize the current during the different rates of speed attained by the train. But this system has three defects: (1) the power which it borrows from the axle, repeated in each car of a long train, increases very perceptibly the already heavy load upon the locomotive; (2) the space occupied and dead weight added by the dynamo, regulator, and accumulator; and (3) the jarring, grinding noise of the dynamo, which has not been reduced to a point where it ceases to annoy and awaken nervous passengers.

The second method, which has been carefully tested by the Prussian administration, is that of large storage batteries, located in each car and fed from electric plants at terminal and other principal stations. This system has the advantage that it does not consume any power from the locomotives and makes no noise or vibration to disturb passengers. Its serious disadvantages are that the storage batteries of sufficient capacity to carry a current supply for a long run are heavy and costly, and the process of charging them at terminal or intermediate stations requires special apparatus and involves delay and technical difficulties which form in the aggregate a serious defect in the working value of the system.

For all these reasons, the Prussian State railway administration, after elaborate and thorough experiment, has settled upon a compromise between all the foregoing methods, namely, a system by which a steam-driven dynamo is placed on the locomotive, under

control of the engine driver, which supplies current to a small regulating storage battery in each car of the train. This renders each separate car of a vestibule train an independent and separate lighting system, in which the lamps are fed from its own accumulator, which derives its supply from the generator at the head of the train. According to the statement of Herr Wichert, this system meets more perfectly than either of the others all the requirements of simple, economical, and efficient construction, maintenance, and attendance in regular service. The first practical tests in this method have been made in the so-called Swedish express, a high-class vestibuled daily train between Berlin and Stralsund. It has proved so efficient and satisfactory that other trains are being equipped with similar apparatus, and all appearances indicate that the State engineers feel that they are at last on the right road to a successful and satisfactory lighting system for passenger carriages. In the distribution of lights, each compartment in a first or second class car has a ceiling lamp, controlled by the attendant, and four reading lights on the sides, which can be turned on or extinguished at will by the passengers.

The dynamos, conductors, storage batteries, and lamps for this purpose have been specially designed by Chief Engineer Wichert and his associates, who exhibited models and drawings of the entire equipment as practical illustrations, with the address, which is accepted here as marking a definite epoch in the history of railway-car lighting in Germany.

FRANK H. MASON,
Consul-General.

BERLIN, *May 2, 1902.*

THE SPIRIT-LOCOMOTIVE WAGON IN GERMANY.

In a recent report from this consulate on the manufacture and technical uses of alcohol in Germany (ADVANCE SHEETS No. 1288, March 13), a brief statement was given of the several obvious reasons which constrain the Government of this country to promote and encourage by all practical means the use of alcohol for technical purposes, including lighting, heating, and the generation of power by means of spirit motors of various types.

A more recent manifestation of this general spirit and purpose has been the publication on April 1 of an offer of a first, second, and third prize of 10,000, 5,000, and 2,000 marks ($2,380, $1,190, and $476), respectively, for the best "Vorspannmaschine," or draft wagon, with alcohol motor. These prizes are offered jointly by the Ministries of War and Agriculture, Domains, and Forestry, and are designed to hasten and bring out in completed form the several types

of spirit-motor vehicles for military and general purposes, which were more or less imperfectly represented and reported about at the exposition of the alcohol industry which took place here from the 8th to the 16th of February.

The specifications are elaborate and precise and provide for a machine which shall weigh, when equipped, supplied, and manned in working order, not to exceed 7,500 kilograms (15,750 pounds), and the heaviest laden axle shall not carry, when in service, more than 5,000 kilograms (11,023 pounds). The other specifications are synopsized as follows, as of possible interest to American inventors, and also because they describe the present standard of efficiency for such motor vehicles in Germany. The machines shall be able to run on good roads, having nowhere a more abrupt ascent than 1 in 10, at an average speed of 5 kilometers (3.1 miles) per hour, or 70 kilometers (43.5 miles) per day, and to haul under the same conditions another vehicle or vehicles weighing up to 15,000 kilograms (31,500 pounds). The machine shall carry a supply of spirits, oil, and all other materials sufficient for a run of two days without replenishing. When running alone without trailing vehicle, the machine must be able to ascend a grade of 1 in 5. It must be able to travel over all roads that are practicable for loaded wagons drawn by horses or oxen, and to traverse fields, meadows, and ordinary farm lanes, or to ford streams or ponds in which the water does not exceed 40 centimeters (16 inches) in depth.

It must run backward as well as forward, be able to make on occasion of necessity 8 kilometers (about 5 miles) per hour when running forward or 3 kilometers (1.8 miles) per hour backward. The machine must be provided with two independent brakes, one of which will automatically act to prevent retrograde movement when the vehicle stops in ascending a grade. The construction must be such that the driver can start, reverse, or control the direction of the machine or oil its principal bearings without descending to the ground. All working joints, axles, and journals must be protected against mud and dust, and all parts of the machine must be susceptible of being made standard and interchangeable in the event that either prize-winning model shall be accepted by Government for military or other uses. The driving wheels shall have a diameter of not less than 1.6 meters (63 inches) nor more than 2 meters (80 inches); the tires, a tread of 16 to 18 inches in width. The height of the fixed portions of the machine above the road level shall not exceed 250 centimeters (8 feet 3 inches); the width, 215 centimeters (7 feet 1 inch); length, 600 centimeters (19 feet 9 inches); and the length of wheel tread, not over 350 centimeters (11 feet 5.8 inches).

The motor must be able to use crude alcohol without admixture

of any other material, or, on the other hand, to use alcohol mixed with benzine or other product of petroleum without injury to the working parts of the machine, and must be provided with igniting apparatus of the best modern type. All tanks which carry inflammable material must be equipped with safety cocks that will avert all danger of explosion. The balance wheel, if used, must be made of steel, and so located and shielded as to offer no danger to the attendants. The machine must be able to start and run or be reversed quietly, without shock or undue noise; must be capable of running in snow or over icy, slippery, or muddy roads; and be able to work continuously twenty-four hours without repair or cleaning.

The points which will be especially considered in the coming competition will be the following:

(1) Relation of initial weight to motive power and the susceptibility of the machine to use ballast for climbing steep grades or hauling excessive loads.

(2) Relation of cost of machine to effective power.

(3) Consumption of spirits per ton kilometer or mile.

(4) The time consumed in making the prescribed 70 kilometers per day.

(5) Durability.

(6) Ease and facility of control by the engine driver.

(7) Interchangeability of parts.

(8) Freedom from noise, smell, and visible smoke or steam

The trials will be held under the management of experts representing the Ministry of Agriculture, Domains, and Forests, and will continue three weeks. All machines designed for the competition must be entered before February 1, 1903. The application must be accompanied by drawings to scale of all parts and details, originals or certified copies of all patents involved in the construction of the motor wagon, and the price at which it can be built and furnished to the Government.

France has taken a strong and successful lead in the application of alcohol motors to automobiles of various classes for travel and the lighter forms of business vehicles. Germany now follows with this definite reach toward a higher and more advanced application of the same material to the heaviest class of locomotive vehicles required for engineering, military, or agricultural purposes. The whole German system of producing and using alcohol for industrial and technical purposes is worthy of the careful study of American economists.

FRANK H. MASON,
Consul-General.

BERLIN, *April 2, 1902.*

INDUSTRIAL EXPOSITION AT DÜSSELDORF.

An exposition of the industries and trades of the Rhineland and Westphalia will be held in this city during the current year (opening May 1), and a general exhibition of German art will be connected therewith.

This exposition will be of exceptional importance; the Crown Prince of the German Empire has undertaken the office of patron. The Emperor will inspect the exhibition about the middle of June, and two men-of-war of the German navy will come up the Rhine to Düsseldorf and stay during the term of the exhibition, open to public inspection.

The exposition comprises 25 groups, which are to illustrate the several trades flourishing in this part of Germany, the social, sanitary, and educational institutions of the provinces, their agriculture, horticulture, arts, and craft. The grounds cover an area of 150 acres, and there are now erected over 160 edifices, representing a value of $2,500,000.

The mining of ore and coal, the production of iron, steel, and other metals, the manufacture of articles in foundries, rolling mills, and machine shops, and the electrical industry are the trades most conspicuous in the well-known manufacturing districts of the Rhineland and Westphalia. The manufacturers and ironmasters, being unable to properly display the development of their industries at the Paris exposition on account of lack of space, resolved to arrange the present undertaking. At that time, the German iron and steel industry and kindred trades were at the height of their glory; since then, however, these industries have undergone serious depression, and it might have been expected that the exhibition would lose thereby. On the contrary, every detail of the original programme has been executed, and vast amounts of money have been expended. Never at any world's exhibition, it is said, were these industries represented in such completeness as on this occasion. The committee strictly refuses anything which is not worthy of exhibition.

Krupp's exhibition building is over 400 feet in length, with iron-clad towers and a military mast 165 feet in height. It will include an arsenal of land and naval artillery, ranging from small cannons placed in the turrets of the military mast to gigantic guns with all appliances of latest construction. There will be a complete stem and stern of a German battle ship and an armor plate of 130 tons (metric) in weight. Models of ships and shipbuilding establishments and many other exhibits of warfare will be shown by the

firm. There will also be a complete shaft, with screw, intended for the large passenger steamer *Kaiser Wilhelm der Grosse*, a 40-ton railroad car, a sheet of tin of 100 square meters (1,076 square feet), whole mining plants, and machinery.

The exhibits of the other large firms, among which the most prominent are the Gutehoffnungshuette in Oberhausen, Bochumer Verein, Rheinische Metallwaaren- und Maschinenfabrik, Hoerder Bergwerks- und Huettenverein, Deutzer Gasmotoren-Fabrik, are not less important. They contain such specialties as a roller carrier 20 meters (65.6 feet) in length, boiler bottoms, railroad tracks; a twin tandem engine, which raises 4,400 kilograms (9,700 pounds) of matter from a depth of 750 meters (2,450 feet), at a rate of 12 meters (47 feet) per second; and a furnace blasting machine with a 1,000-horsepower gas motor. These machines may be seen in operation. The mining trades will have exhibits to demonstrate the several stages in the development of the mining industry of these provinces during the last two decades, and will show in operation a whole mining shaft, with all the wood-framing, ventilators, pumps, and other machinery.

Exhibitors who have not erected their own pavilions will be represented in the machinery hall, which covers an area of 5 acres, not including the buildings for boilers, pumps, etc. The central station (15,000 horsepower) for the generation of electric light and power for the exposition has its place in this hall. Electricity will be used for operating all the machinery on the grounds, for lighting 1,000 arc lights and over 40,000 incandescent lamps, and for supplying power to a railroad which makes the circuit of the exhibition.

While the industries mentioned are the most prominent in the exposition, other trades flourishing in this part of the Empire will also be represented. There will be the extensive structures of the German Beton Company; the fancy-goods manufacturers will show, among other things, agate grinding and an amethyst druse of the respectable weight of over 30,000 pounds; the textile industries will not only present their fabrics, but will show how their machines and looms work; the paper and polygraphic trades will operate the latest printing and other machines.

The historical-art exhibition will review the development of the West German arts, and will embrace original work in stone, wood, ivory, metal, and clay, pictures and miniatures, arms, furniture, tapestry, etc. The art palace will remain standing, to serve as a fresh ornament to the city.

The number of exhibitors will be between 2,300 and 2,400.

There will be some thirty restaurants, and entertainments and amusements will be plentiful.

A number of congresses will meet in Düsseldorf during the exhibition season. One of the largest is the international river navigation congress, to which the German Government contributed 100,000 marks ($23,800); also that of the German Shipbuilding Society, in which the English Institute of Naval Architects and the French Technical Maritime Association will officially take part; congresses of the German electrical engineers, the German chemists, the gas and water engineers, the paper union, the banking companies, and the international congress for workmen's insurance and on the housing question are among others.

P. LIEBER,
Consul.

DÜSSELDORF, *March 22, 1902.*

THE MOTOR-BOAT EXPOSITION AT BERLIN.

In a recent report from this consulate (ADVANCE SHEETS No. 1290, March 15*), some account was given of a special international exposition of motor boats and all that pertains to their construction, use, and maintenance, which is to be held at Wannsee-on-the-Havel, a few miles west of Berlin, from June until September of this year. For reasons which were therein stated, it was urgently suggested that American builders of motor boats, engines, and other appliances pertaining thereto would find here an excellent opportunity to introduce and exhibit their work before a chosen and highly appreciative audience, and that the commercial advantages of such a display would probably be important and valuable.

The response to this appeal, as well as to the prospectuses and correspondence sent out by the association itself to leading American boat builders, has been disappointing, the general tenor of such replies being that they are all busy with their orders at home, that their whole output for this season is sold, and that they have nothing to spare for exhibition purposes. This may be true, but it is a fair question whether neglect to utilize an opportunity like this will not be a repetition of the mistake which the makers of fire-extinguishing apparatus committed, when they failed to exhibit at the special exposition of firemen's appliances held here last year. The one American firm which did exhibit an electric fire-alarm system is now putting it in for the city of Hanover, and has under negotiation contracts for similar installations in other German cities.

There is abundant evidence that a good representative American display at the motor-boat exposition this year would be an unusually promising investment for the exhibitors. It is fully understood here

*CONSULAR REPORTS No. 260.

that our country is first and foremost in all that relates to the construction and use of motor boats as naval auxiliaries and for pleasure and business purposes. It is also recognized that Germany—the original home of the gas engine—is so far behind in that class of water craft that the field is practically unoccupied. So many inquiries have been received by the committee about probable American exhibits—their tonnage, cost, and other details—that there is evidence of a real demand, and the committee states that from all such indications American exhibitors of standard types of motor boats, engines, etc., would be practically certain to not only sell their entire lists of exhibits, but to take numerous orders for future delivery. Responsible firms here and at the large German seaports are eager to accept agencies to represent American builders, and German machinists will be on the watch to purchase valuable patents in that class. Obviously, all novelties should be patented or registered and the patents applied for before being exhibited anywhere in Europe. It will be many years before another special international exhibition and classified competition of motor boats will be held in this country, and the present opportunity once lost will not soon recur. The committee authorizes the statement that every reasonable concession and assistance to facilitate a representative American display will be gladly and promptly accorded. Berlin is the center and mart of a vast system of canals, lakes, and canalized rivers which could be freely navigated by motor boats, where few or none now exist. If American builders will not reach out to grasp an opportunity like this, the builders of other countries—notably Great Britain, France, and Belgium—certainly will.

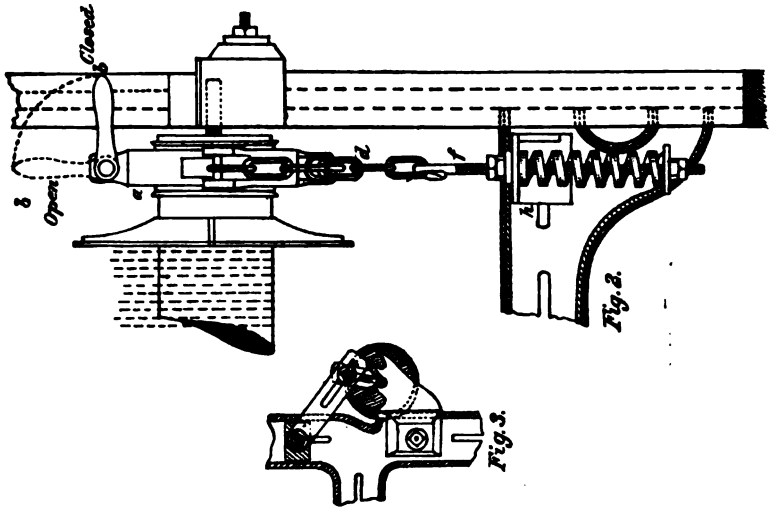
FRANK H. MASON,
Consul-General.

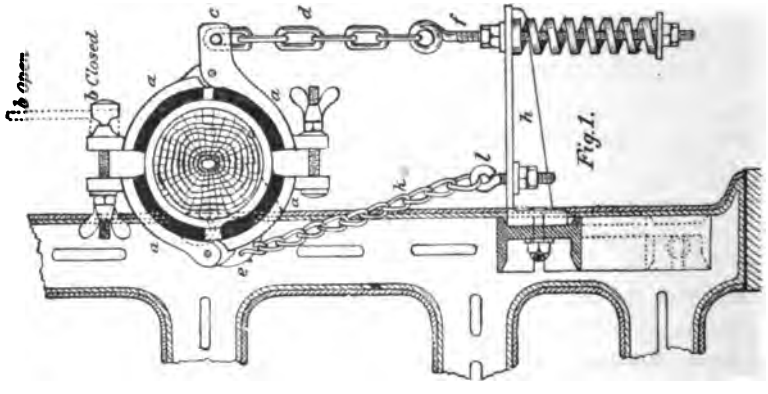
BERLIN, *April 21, 1902.*

NEW WEAVING BRAKE IN GERMANY.

The application of machinery to industries of every kind, which in former years were carried on chiefly by hand, has in no part of Germany made more progress than among the textile centers of Saxony. Especially is this the case with weaving machines and hose and dress-trimming machinery. Inventions are being made every year which tend to cheapen the cost of production. Ernest Buschmann, of Glauchau, Saxony, has devised a suspending brake which is finding favor among manufacturers; and inasmuch as this invention may be of interest to American owners of weaving machinery, I give the following description and illustration. For detailed information, I would refer interested parties to the inventor himself.

The advantages claimed for this invention are that it does away with cords, band rack, and pinion chains, and other inconveniences generally. Repairs are unnecessary, while the weaver and manufacturer gain much in both time and space. When the machine is stationary, the threads and yarn are not stretched. The goods are in no way damaged, because the use of weights is entirely eliminated





in this method. The breaking of thread and yarn has been reduced to a minimum.

The component parts of this invention are:

I. An iron ring (*a*) composed of two parts connected by screws; attached to this ring is a perforated piston (*b*), nose (*c*), eye (*e*), screws, etc.

II. A chain (*d*) connecting ring with hooked screw (*f*).

III. A brace (*h*) which can be attached to any known weaving machine.

IV. A counter chain (*k*) and a hooked screw (*l*) attached to brace.

V. For light fabrics and thin goods generally, only one brake is necessary. On machines with no pan for the upper gudgeon of an upright shaft, each brake is furnished with a gudgeon holder (see fig. 3).

The accompanying illustration shows:

Fig. 1. Brake as attached to any ordinary weaving machine.

Fig. 2. Front view.

Fig. 3. Gudgeon, with incasement.

ERNEST L. HARRIS,

EIBENSTOCK, *March 15, 1902.* *Consular Agent.*

IMPROVEMENTS IN TEXTILES AT GERA.

The principality of Reuss—of which Gera is the chief city—though insignificant as to size, enjoys a wide reputation for its manufacture of woolen, worsted, and mixed goods for both ladies' and men's wear.

Before the United States tariff of 1897 went into effect, many of the products were exported to the United States; indeed, several of the largest factories worked for the American trade, cashmeres, diagonals, kips, and other plain fabrics forming the chief articles of export. Since that time, various causes have wrought marked changes in the manufactures of this city.

A rapid rise in the prices of wool led to a demand for cotton mixtures. There was opposition to this innovation at first, as it was considered detrimental to Gera's reputation for pure-woolen articles, but the demand was too strong to be resisted. Moreover, the partial loss of foreign markets for staples contributed to diversity in the production of mohair and silk mixtures, and it is doubtless to be ascribed to this timely policy that Gera's exports to the United States show no further decline in the last two years.

To-day almost every manufacturer produces merinos, cashmeres, cashmere doubles, silk warp henriettas, satins, muslins, batistes, noils, ajours, poplins, bengalines, serges, cheviots, mohairs, jacquards, vigoureux, and other textiles for evening dresses, as well as for mantles and cloaks, and for men's wear. This diversified production means a vast amount of work and shows the difficulty under which the German textile industry is laboring in its efforts to hold its remaining markets.

Technical inventions form an important factor in the changed production; the art of imitating beige or vigoureux, by printing a textile on both sides, is noteworthy. The imitation is effected by providing

a roughly bleached or piece-dyed textile with straight or irregular lines (which form a characteristic of beige), these lines running both lengthwise and crosswise. An expert can scarcely distinguish the fabric from a real beige. This process has the advantage of not requiring specially colored yarns, so that no large quantities of yarns of different qualities and shades have to be stored; and delays on the part of the spinner will not interfere with the delivery of the ready-made fabrics, as uncolored yarns are obtainable at almost any time.

Though the invention is not yet perfect (as it is difficult to determine the exact length of time for the application of steam in the washing apparatus, and as a consequence to get the right shade), this deficiency is of minor importance, considering the reduced cost of production and the fastness of the colors.

The demand for this class of goods is constantly increasing, so that the few dyeing and finishing establishments familiar with the invention are working day and night and enlarging their plants to fill orders.

CHARLES NEUER,
Consular Agent.

GERA, *March 20, 1902.*

NEW GERMAN ACETYLENE GENERATOR.

In answer to inquiries from the United States, Consul-General O. J. D. Hughes, of Coburg, reports, April 18, 1902, that Mr. Erik Cornelius, chemist at the carbide factory at Trollhattan, has invented a new acetylene generator. This generator, says the consul-general, is described as being much simpler in construction than any yet placed upon the market, and occupies but little space. In its operation, the falling of the carbide into the water is automatically regulated by a hollow rubber ball, which, as soon as it is filled with gas, closes the valve between the carbide and the water. When the volume of gas decreases, the rubber ball contracts and the feed valve again permits the carbide to drop. The gas is stored partly in the rubber ball and partly in the space between the funnel-shaped carbide magazine and the water. If more than the normal amount of gas is generated, it secures more room by forcing the water through valves into the water jacket in the sides of the apparatus. A separate gas tank is therefore not needed. Should too much gas be produced, both the water and the gas escape through a safety valve. Common carbide is used; no cartridges. The gas is dried by being allowed to pass through the carbide magazine, where the carbide absorbs the moisture. As there is no gas tank, and as the quantity of gas thus stored is insignificant, it is considered that the fire-insurance companies will, without raising the premiums, approve of the apparatus, even when it is placed in dwelling houses.

DUTY ON CELLULOID IN GERMANY.

Celluloid in plates, whether white or colored, was subject to a duty in Germany of 3 marks (71.4 cents) per 100 kilograms (220.46 pounds) until the middle of 1901, when the custom-houses were instructed that black or tortoise-shell plates, without preparatory work, were to be classed as "polished" and subjected to a duty of 200 marks ($47.60) per 100 kilograms (220.46 pounds).

German celluloid is used to a great extent in the manufacture of ordinary cutlery, while for the better grades of knives imported celluloid must be used. Tests of German celluloid have shown that it is not sufficiently free from acid, which eventually affects the metal parts; and the handles themselves lose their brightness and are liable to shrink. Under these conditions, the cutlery industry of Solingen can not do without the imported article; but the increased duty practically prevents its importation.

The Chamber of Commerce at Solingen appealed to the Government to change the duty, and the following decision has been rendered:

Celluloid plates and sheets cut from a (soft) block, then dried and finally pressed for the purpose of removing any unevenness, shall be considered as "raw," provided the cutting grooves, whether on one or both sides, are discernible.

JOSEPH J. LANGER,
SOLINGEN, *April 22, 1902.* *Consul.*

AMERICAN APPLES IN GERMANY.

In a recent interview with a prominent fruit and produce dealer in the Grand Duchy of Baden, I was told that a large demand for American apples and apple products could be created in Germany, if a little more care were taken by the producers and exporters. He informed me that the dried apples arrive in fair condition, but that the evaporated apples do not; nor can they be kept in the market for any length of time, for they soon become moldy or decay.

This dealer suggests that the apples should be more thoroughly evaporated and then properly packed for the export trade. He says there is a great demand for American evaporated apples, and if they can be received in better condition there are prospects of a still further increase of trade.

He also referred to the unsatisfactory condition in which raw

apples are often received, and suggested that the same care should be taken in handling and packing apples as is used with oranges; if they were packed in paper or in layers of straw, it might be a guaranty of their arrival in sound condition.

If these points are taken into consideration, this gentleman claims that the market for American apples and products thereof will be enormously enlarged.

BENJAMIN F. LIEFELD,
Vice-Consul.

FREIBURG, *March 26, 1902.*

PROPOSED GERMAN TARIFF AND SWEDISH JOINERS' INDUSTRY.

Considerable quantities of joiners' manufactures—doors, sashes, etc.—are exported from Sweden to Germany. They have hitherto had to pay a duty of 3 marks (71 cents) per 100 kilograms (220 pounds). The new German tariff proposes to increase this duty to 10 marks ($2.38). The directors of the Swedish Export Union have addressed a memorial to the Swedish Government, stating that such a rate of duty would almost exclude them from the German market.

The average price of the principal article—doors—is 10 marks ($2.38), less 33⅓ per cent discount, or hardly 7 marks ($1.67) net. The doors average in weight 3½ to the 100 kilograms (220 pounds) and cost about 24.50 marks ($5.83).

Of the total Swedish export of joiners material (valued at 5,340,000 crowns, or $1,431,120, in 1901), 2,460,000 crowns' ($659,280) worth went direct to Germany, and a considerable portion of Sweden's export to Holland and Belgium was reexported to Germany. It is further stated in the memorial that it appears impossible for the Swedes to find new markets to offset the loss of this one. In England the sale of Swedish building material has become less every year, owing to American competition.

The proposed German tariff will not injure American industries alone. One hears talk of reprisals from several lands whose export trade to Germany is menaced.

Germany, some writers insist, may find difficulty in concluding satisfactory commercial treaties if the proposed tariff becomes a law.

THOS. EWING MOORE,
Consul.

WEIMAR, *March 25, 1902.*

THE SPITZBERGEN COAL DEPOSITS.

According to the Thjems Adr, a company of Drontheim, Norway, which owns coal deposits in Spitzbergen, proposes to incorporate a joint-stock company with a capital of 350,000 kroner ($93,800). As soon as 250,000 kroner ($67,000) have been subscribed the company will start work. The shipping of the coal will take place in the summer.

The company intends to construct a rope railway capable of carrying 60 tons per hour. It is calculated that the coal can be delivered at Drontheim at a cost of from 7.27 to 8.85 kroner ($1.95 to $2.37) per ton. Freight rates are about 67 cents per ton.

It is believed that the mines will give a clear profit of 50,000 kroner ($13,400) a year, with an annual production of 25,000 tons. Later on, 50,000 tons should be yearly produced. As the deposits in some places are not less than 9 feet thick, the total is estimated at 500,000,000 tons.

As there may be an opportunity for our manufacturers of coal-mining machinery to obtain orders, I would suggest that they send catalogues and price lists to this consulate, and I shall place them in the hands of parties interested.

VICTOR E. NELSON,
Consul.

BERGEN, *April 11, 1902.*

MILK FLOUR IN SWEDEN.

My short report of November 20, 1901,* concerning milk flour seems to have attracted wide attention. The following extract from Göteborgs Aftonblad shows that the Swedes themselves seem to believe in the merits of the invention:

Dr. Ekenberg and five other business men have applied to the office of the governor-general in Stockholm for the incorporation of a company to manufacture and sell Dr. Ekenberg's "exsiccators" and other apparatus for the manufacture of milk flour. The head office will be in Stockholm. The minimum joint stock of the company shall be 1,000,000 kronor ($268,000) and the maximum 3,000,000 kronor ($804,000), in shares of 500 kronor ($134) each, the preferred stock not to exceed 600,000 kronor ($160,800).

It has been impossible for me to obtain particulars about the method of manufacture or terms for the sale of the patent in foreign countries, but perhaps Americans interested can get particulars from Dr. Ekenberg.

ROBERT S. S. BERGH,
Consul.

GOTHENBURG, *March 26, 1902.*

*ADVANCE SHEETS No. 1217; CONSULAR REPORTS No. 257.

RUSSIAN AGRICULTURAL COMMISSION.

The Russian Government has appointed a commission to investigate agricultural methods and the condition of the peasantry in Russia, with a view to improving both. For some years past, the efforts of the Minister of Finance have been directed to the development of manufacturing industries; but the results, owing to lack of experience in management as well as to the dearth of skilled labor, have failed to meet expectations. The present stringency in the money market and the depression in all classes of business, combined with continued failure of crops in many provinces and the resulting famine, have induced Russian authorities to turn their attention to the study of means for improving and developing the millions of acres of land upon which subsist 90 per cent of the 128,000,000 people of the Empire. The powers accorded the commission are the widest, and it is authorized to present proposals for bettering agriculture and agricultural labor in every way possible.

W. R. HOLLOWAY,

ST. PETERSBURG, *April 15, 1902.* *Consul-General.*

ENGLISH VS. GERMAN TRADE IN RUSSIA.

Consul Marshal Halstead transmits from Birmingham, March 13, 1902, extract from the London Daily Mail in regard to the visit to London of Mr. Henry Cooke, British commercial agent in Russia. The article reads, in part:

ENGLISH TRADE IN RUSSIA.

[By A. Montefiore Brice, F. R. G. S.]

Rather over two years ago, the Foreign Office was guilty of an act of superlative merit. It appointed in certain countries British officials, who, unlike consuls with various and conflicting claims on their services, should devote their whole time and all their energies to the promotion of British trade in those countries; and these officials it styled "British commercial agents."

There happens to be in London one such official who has come home, at the request of the Foreign Office, in order to confer with our chambers of commerce and leading manufacturers.

Mr. Cooke is here to place his highly specialized knowledge of things and industries Russian at the service of our industrial leaders, and for the good of this country.

Hitherto, Germany has been the best customer for Russian exports—and practically agricultural produce constitutes the whole of them—but a new spirit has arisen in Russia with regard to Germany. This I attribute to three causes:

(1) The first is the tariff difficulty with Germany, who is putting up her tariff against the Russian agricultural produce she has bought so largely.

(2) Then there is the tariff conflict with the United States over the sugar-bounty question, in consequence of which Russia last year raised her tariff on American machinery and mechanical appliances.*

(3) Finally, there is the boycott which Poland has given to German goods on account of "the Areschen affair." This last, however, I regard as transitory.

Taken together, these causes are more than sufficient to induce Russia to turn to the free and open markets of Great Britain.

The question, then, before commercial England is, How are we going to induce Russia to buy British goods in larger quantities?

During the last year, we sold to Russia rather over £12,000,000 ($58,300,000) worth of goods—a value which, taken in regard to its proportion to the total volume of Russian imports, shows that for the past ten years that proportion has not increased one-half of 1 per cent.

Our great competitors are Germany, America, France, Austria, and Belgium; and Germany is by far the greatest of them all, having in these ten years raised her percentage of the import trade from 27.5 to 37.5. Germany, indeed, forges ahead of us in every particular (including our own strong department of machinery), with the exception of coal, india rubber, cotton, pig iron, and tin. English locomotives are sadly to seek; steam and gas engines come from Germany; of English electrical plant there is none; of mining machinery, none; sewing machines are German, and typewriters American; the bicycles are now largely American, and the furniture is almost entirely German. Germany sends eight times more glass than England, which is also beaten by Austria; four times more of chemicals, and the same preponderance of dyes and dyeing substances.

Mr. Cooke is of opinion that (1) the Russian system of long credit, (2) the German influence, (3) our comparative ignorance of Russia and the Russians and their needs, and (4) our inadequate representation on the spot are the chief obstacles to our trade.

We have not yet fully realized that Russia is Eastern rather than Western—oriental rather than European. This applies to taste in goods, slowness to change, the demand for long credit, as well as to other characteristics. Nor does the English trader sufficiently realize that in Russia are regions of very different climates, populated by people of very different habits and requirements.

"Especially," says Mr. Cooke, "improve your commercial traveler. Let him have the best education—general as well as technical. He must know the language, and he must stop in the country. The Russians do not want expensive goods—they want them cheap and strong, rather than costly and highly finished. Above all, do away with German agents and Germany as an intermediary. I have heard it said that most of the chemicals sold by Germany to Russia came originally from England. Why didn't England sell them direct?"

AMERICAN AGRICULTURAL MACHINERY IN SWITZERLAND.

Consular officers have often advised the sending of agents into foreign countries for the purpose of soliciting orders, and the value of this method is shown in the case of a large agricultural company now doing business in Switzerland. This company established an agency in Zurich about two years ago, and put in

* See ADVANCE SHEETS No. 1017; CONSULAR REPORTS No. 248.

charge a practical American, who thoroughly understood the business. He brought with him samples of the implements which he considered adapted to the needs of the Swiss farmer. For the first six months, I do not think he had much success; in fact, I am inclined to believe that he did not book a single order. But by dint of hard work and practical demonstrations of what his agricultural implements could accomplish, he has gradually attracted the attention of the Swiss farmer, until now the business has increased to such proportions that several salesmen are kept on the road, and, as the utility of the implements is so well proved, there is no doubt that the sales will steadily increase from year to year.

Let our manufacturers and business men take this lesson to heart; what one agent has accomplished in the course of two years could never have been accomplished by means of catalogues.

HENRY H. MORGAN,

AARAU, *April 7, 1902.* *Consul.*

SEASON TICKETS ON SWISS RAILWAYS.

Under date of April 17, 1902, Consul E. T. Liefeld, of Freiburg, sends statement of recent changes in the season-ticket system of Swiss railways, and a circular, issued by the Swiss Government in German and French, giving a map showing the transportation lines, railway and steamboat, on which these tickets are valid, together with the rules and regulations governing them. This union includes fifteen railway systems and seven lake-steamship companies. The tickets are of three classes and are issued for any period of time, from fifteen days to a year. They may be obtained by giving due notice (two hours at the main station) at the ticket office of any railway station. A small, unmounted photograph of the person must accompany the order, to be attached to the ticket, and a deposit of 5 francs (96 cents) is exacted at the time of payment. This deposit will be refunded if the ticket is returned to any station within a half day after the limit has expired. The time expires at midnight of the last day, the first and last days indicated on the tickets being counted in the time of validity. Prices and rules are filed in the Bureau of Foreign Commerce, where they may be examined by parties interested.

ELECTRIC RAILWAYS IN SWITZERLAND.

The old-fashioned diligence, which up to the present has been the means of transportation between the smaller towns and villages of Switzerland which are off the lines of railway, is being rapidly superseded by electric railways, and the day is not far distant when most of the towns of the country will be so connected. A short time ago, an electric line was opened connecting Aarau with Schöftland, a distance of about 10 miles. Until the opening of this line, the time consumed in making the journey (by diligence) was one hour and ten minutes. Now, including several stops at villages along the line, the time occupied is forty minutes.

A company is seeking a concession for a line from Aarau to Menziken, on the border of the Canton of Lucerne, and this will be joined by a line running from the city of Sursee northward, thus making an electric-tramway connection for a distance of about 30 miles. Still another line is projected to run from Aarau to Frick—a most important plan, as it will place Aarau in direct communication with Laufenburg, Säckingen, and other towns in the Rhine Valley. The length of this line will be also about 30 miles.

The power to be used by these different roads will be derived from the waterfalls of the country.

In view of the important works in contemplation, it might be of advantage to our manufacturers of electric railway supplies to investigate the subject.

HENRY H. MORGAN,
Consul.

AARAU, *April 3, 1902.*

Under date of April 22, Mr. Morgan refers to the efforts in Sweden to replace steam by electricity on the railways.* He notes that the Maschinenfabrik Oerlikon, a firm of Switzerland which has petitioned the Swiss Government for a concession to construct a line of 20 kilometers (12.4 miles) of standard-gauge electrical railway for experimental purposes,† has agreed to furnish a Swedish company, free of all charge, the necessary electrical engines and motors for the trials in Sweden, provided said company would furnish the electrical force.

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*ADVANCE SHEETS No. 1261 (February 10, 1902); CONSULAR REPORTS No. 259.
†ADVANCE SHEETS No. 1315 (April 14, 1902).

ELECTRICAL ENTERPRISE IN WALES.

Wales is at present much interested in what promises to be the most gigantic enterprise in the principality—the South Wales Electrical Distribution Company, which is building a large generating station at Pontypridd. The station, when completed, will control no less than 70,000 horsepower, and no one unit will be smaller than 3,000 indicated horsepower. I give below a description of the plant, summarized from an article in the South Wales Daily News.

This enterprise is expected to have a far-reaching effect upon economic conditions in the country. Cheap power will be available everywhere, not only for the production of articles of commerce, but also for their speedy conveyance to market.

At present, five combined sets of triple-expansion engines and generators, together with twenty-four water-tube boilers, and all the necessary auxiliary machinery, switchboards, mains, etc., are being provided for, and will be at work within twelve months from the present time.

The boilers are of the water-tube type, a very large number of which kind are now in use in South Wales. Up to a few years ago, the only boilers employed were those which consisted of a round shell in some part of which was placed a fire, and the flames and hot gases from this fire passed sometimes through one large and sometimes through two or three hundred small tubes surrounded with water. In the modern and far more efficient boiler, the order of things is reversed. In these, tubes which contain water are set at an angle, in order to keep the water constantly on the move, and are surrounded by the flames and hot gases from the fire. The cold feed water enters at the bottom of the tubes, rises of its own accord as it becomes heated, and, toward the end of its climb, is converted into dry high-pressure steam, which passes into a chamber provided for the purpose, whence it is led to the engines.

The boilers that are now being made for the Pontypridd station are of the Niclausse type, which have given such excellent results in the ships of the French navy and elsewhere, and they are being manufactured by Messrs. Willans & Robinson, at their works on the Dee, near Hawarden.

Each of the twenty-four boilers will evaporate 1,400 gallons of water per hour when fired with slack coal, and will generate this steam at a pressure of 200 pounds per square inch. The coal to feed them will be brought straight from the pit, along a siding connected to the Taff Vale Railway, and above the level of the boilers, and will be shot into hoppers, one above each fire-hole door. The ashes and clinker left after burning will drop through another set of hoppers direct into trucks in the basement beneath the grates. Instead of building one or more costly chimneys, forced draft will be employed, created by means of electrically driven fans, and allowing of the nicest and most exact regulation to suit the varying requirements of the work to be done, and also allowing the commonest and cheapest coal to be burnt—coal which is often a waste product at the colliery. The feed pumps which supply the boilers with their water will also be driven by electric motors, and each will be capable of supplying 10,000 gallons of water per hour against the boiler pressure of 200 pounds to the square inch; and, in addition, injectors will be provided to supply the boilers with water, should any accident happen to the pumps.

The steam generated in the boilers will be conveyed to the engines by a system of piping so arranged that any engine can be supplied from any boiler. Further, any engine or any boiler, or both, can be completely shut off from any other and also from the main steam supply, so that temporary repairs can be performed with absolute safety.

The five main engines of 3,000 indicated horsepower each are now in course of construction at the Rugby Works. They are of their universally known vertical triple-expansion three-crank condensing type, in which three really separate engines, each consisting of a high, an intermediate, and a low-pressure cylinder, all work onto one main shaft provided with three cranks set at angles of 120° apart. Each set of three cylinders is single acting, the steam only pressing on the top side of each piston, and in consequence the pistons, piston rods, connecting rods, cranks, and brasses are always in a state of compression, and do not experience that change from compression to tension, and vice versa, many hundreds of times in each minute that occur in an ordinary engine and are so injurious to the mechanism itself and so productive of unsteady running. These engines work at 160 revolutions per minute and develop 3,000 horsepower each, with a steam pressure of 180 pounds to the square inch in the high-pressure cylinders and a vacuum of 25 inches in the condensers.

The condensers, with their air pumps, each capable of turning about 22½ tons weight of exhaust steam back into water per hour, will be placed in the basement below their respective engines. The water-circulating pumps for the condensers, each capable of delivering 200,000 gallons per hour against a head of 40 feet, as well as the air pumps, will be electrically driven. The main generators will be coupled direct to the crank shafts of the engines, and will therefore run at the same speed, namely, 160 revolutions per minute. They will generate a three-phase alternating current at a pressure of 12,000 volts, and with a low periodicity. Each generator is so designed that it can be satisfactorily worked in "parallel," with all or any of its fellows—that is to say, should three out of the five be working, and should another be required, it can be started, run up to its right speed and pressure, and then attached to the load without any danger of itself "jibbing" or of making any of the others inclined to "jib."

The building in which this plant will be installed, and of which the foundations are now nearly completed, will, when finished, be of the following dimensions: Length, 760 feet; width, 277 feet; height, 55 feet.

The "mains"—or, in other words, the properly insulated and protected copper conductors which are to convey the power generated in the station to the company's various consumers—are a subject of peculiar interest. Electrical energy is a form of power about which, possibly, less is known but with which more can be done than by any other agency known to man. It can be conveyed with almost negligible loss through enormous distances under, through, or over anything, around corners, up mountains and down precipices, through earth, air, or water, and it can at any state be measured with the greatest exactitude, and the work which it will perform can be reckoned to one-tenth of 1 per cent; but it will only arrive at its destination in this desired form if the "conductors" which convey it are of the best possible description. The three-phase current requires a three-core cable, each core of which is made up of strands of the purest obtainable soft copper wire. Each of these three cores is insulated with paper wound round it, layer after layer, until at least a thickness of a quarter of an inch is obtained. The separate cores with their paper coverings are then placed in a chamber from which all air is exhausted (and with the air, the moisture in the paper is also drawn out), and the insulation is then, while in that dry condition, thoroughly impregnated with fine bitumen oils, which have not only excellent insulating qualities, but which are also

entirely waterproof. Hence, the copper conductors' first covering, which was dry to start with, will remain dry forever. The three cores are next stranded together into one rope, and are made up into circular form by more paper impregnated with bitumen oils as above. The "cable," as it is now called, is then passed through a bitumen and wax compound, and afterwards has drawn upon it externally by hydraulic pressure a lead sheath one-eighth of an inch in thickness and without joint of any kind. This jointless lead tube or sheathing is, of course, water-tight, and allows the cable to be laid, if necessary, even through the bed of a river without fear of its being damaged. Over and around the lead sheathing a ring—and often a double ring—of steel wires is tightly wound, which affords complete protection against mechanical injury. In fact, it would give a strong man armed with a pick a deal of trouble to make any impression on such a cable. But even now, the cable has another protection given it. It is laid, some 2 feet below the surface of the ground, in earthenware troughs, and these troughs are then filled in with molten bitumen, which sets, not too hard to be got out again if required, all round the cable, which is thus rendered absolutely water, air, and gas proof. Finally, the troughs are covered in by earthenware tiles set fast in the hot bitumen.

These cables, which have to carry energy at a pressure of 12,000 volts, are tested, before leaving the works, at a pressure of 25,000 volts, and this test is made after they have been totally immersed in water for twenty-four hours.

The whole of the cables for the company are being made at the Erith works of Callender's Cable and Construction Company, Limited, which will commence laying the first set of mains early in the coming summer.

D. T. PHILLIPS,

CARDIFF, *April 23, 1902.* *Consul.*

ELECTRIC RAILWAYS IN SPAIN.

As a matter of interest to American builders and projectors of electric railways in Europe, I would report that a meeting of the stockholders of the Orense and Vigo Railway Company will shortly be held, to discuss a plan for applying electrical traction not only to the line (82½ miles in length) from Vigo to Orense, but to all the various lines of the important province of Galicia. There is a large waterfall in the midst of these lines, and it is proposed to utilize this for producing power, beginning first on the line connecting the important seaport of Vigo with the large interior town of Orense. This proposition would seem to suggest an opportunity for American electrical railway contractors, as well as for manufacturers of electrical railway machinery, devices, and rolling stock. Of course, I do not speak advisedly as to this, being too far away from the proposed center of operations, but I think it worth while to report the prospective construction. To investigate the matter intelligently, a visit to the headquarters of the railway companies would be necessary.

It may be said incidentally that there is a strong feeling in Spain in favor of the American system of electrical traction, as well as of

American rolling stock, and if it should be decided to introduce electrical traction as widely as is proposed, it seems to me that Americans interested in such ventures would do well to look into the matter.

While writing on this subject, it may be worth while to call attention to the city of Toulouse, in southern France. This is one of the largest towns of the French Republic, with a population of about 175,000. It has an extensive street-railway system with many suburban lines, but the whole system is operated by animal traction. It is thus the only large city in France that has not adopted electrical traction, and a gentlemen in discussing the matter with me recently expressed the opinion that it must soon follow the example of the others. Here, then, is another town that interested Americans would do well to watch. I do not know how or why it has escaped the attention of Mr. Henry E. Butters and his associates, who have built and are very profitably operating electrical street-railway systems at Geneva, Switzerland, and elsewhere in foreign countries.

In closing this report, I may add that an American electrical engineer arrived at Malaga some months ago and is now engaged in surveying a route for a proposed electrical suburban railway to connect this city with various neighboring towns and villages.

BENJ. H. RIDGELY,

MALAGA, *April 21, 1902.* *Consul.*

JORDAN ALMONDS IN CALIFORNIA.

It has always been held that the famous Jordan almonds of commerce could be produced only in this province (Malaga) and, to a certain extent, in the adjacent provinces of Granada and Almeria. Efforts to grow them in other parts of Spain, as well as in France and Italy, are believed to have invariably failed. Recently, I received a letter from the president of the California Nursery Company, of Niles, Alameda County, Cal., reading, in part:

> We send you to-day per mail in separate packages samples of almonds. The trees from which these nuts were grown we received from France for the Jordan almond. They were a mixed lot of trees, and only one tree produced such nuts as are mailed you. Will you please advise us if they are Jordan almonds? Samples which we received from New York as the Jordan almond that were imported from Spain were oblong and had no curve, like those we send you.

I showed the samples to three different local experts, and in each instance they were unhesitatingly declared to be *Almondra larga*, or, in other words, the famous Jordan almonds of commerce, of a fair,

medium grade. The taste seemed quite the same, and there was very little difference in the shape.

The surprising feature of this incident lies in the fact that the almonds in question are said to have been grown on a tree imported from France. Is it possible, then, that a tree which would not produce typical Jordan almonds in France would produce them in California?

About 85,000 boxes of these famous almonds are annually exported from Malaga, which is their only market of origin. The report from California and the result of my investigation would seem to indicate, however, that Jordan almonds can now be grown in California. If this be true, the California growers will probably find the matter well worth their attention, as both the demand and the prices for Jordan almonds have steadily increased during recent years. The present price of these almonds, for the popular grade known as "confectioners," is $8.75* per box of 25 pounds f. o. b. Malaga. The price at the same period last year was $7 per box.

London and New York have generally taken virtually the whole crop of Jordans. At present, the local stock of bona fide Jordans is practically exhausted, and although all the present signs promise a good crop this year, it is much too early to speak with any certainty as to the prospect. Of the crop of 1901, 31,200 boxes were exported direct from Malaga to the United States.

BENJ. H. RIDGELY,
Consul.

MALAGA, *March 29, 1902.*

AMERICAN LOCOMOTIVES IN TUNIS.

A serious collision recently took place on the railway line, a short distance from Tunis, between an incoming passenger train from Algiers and an outgoing freight train. The investigation of the causes of the collision developed a good deal of conflicting testimony as to who was in fault, but one engineer asserted that the origin of the whole trouble was the unmanageableness of the Baldwin locomotive attached to the outgoing train. He declared that, on observing the signals of the incoming train, he promptly reversed and put down brakes, but ineffectually, owing to the impetus gained by his engine.

In order to clear up all doubts as to who was responsible for the collision, it was decided to reconstitute the train in precisely the same conditions as when the accident occurred. One of the most reliable engineers on the road was put in charge of the engine, and

*The last sales for export to the United States were at this price.

repeated experiments proved that the train could be easily stopped at a distance of 150 feet from the spot where the collision occurred. The ease and certitude with which the huge locomotive answered the handling was considered nothing short of miraculous by the authorities of the road.

As it is probable that important railway extension will be effected in Tunis in the near future, this circumstance will very likely be a factor in opening negotiations for supplies of material from the United States.

ST. L. A. TOUHAY,
Vice-Consul.

TUNIS, *April 9, 1902.*

AMERICAN COAL IN EGYPT.

I have in recent reports noted the rapidly increasing demand for American goods in Egypt and the establishment of a regular line of direct steamship transportation between New York and Alexandria.*

I now have to report further that an Egyptian Government administration has just consummated the purchase of three large cargoes of American coal, said to be about 15,000 tons, for its own use. The steamers to bring this coal to Egypt were chartered in England and will take the coal at Philadelphia, and, after discharging their cargoes at Alexandria, will return to Philadelphia with cargoes of sugar.

This news has excited much comment here, and the Egyptian Government administration in question is severely criticised. It is claimed, by those who view this new departure with apprehension, that the quality of American coal can not be compared with English coal, as there is about 75 per cent of dust and small in it, and that English coal is not only much better, but also much cheaper; and they express their amazement and say they are at a loss to understand the motive of the administration in making this purchase.

The cost in the United States is $2.50 per ton and freight $2.30 per ton, aggregating a little less that $5 per ton delivered at Alexandria. This large transaction, it is stated in some of the local newspapers, has created quite a sensation in the coal trade in England. It may be regarded as the entering wedge in the development of a new market for American coal and a hopeful indication that we are slowly, but most surely, gaining ground in Egypt, in spite of the peculiar difficulties and under conditions which, only a few years ago, seemed too discouraging to justify effort.

There has within the past few years been marvelous improvement in all Egyptian industries and a more satisfactory adjustment

*ADVANCE SHEETS No. 1307 and volume 1 of Commercial Relations, 1901 (in press).

of her population to her resources. Financial stability has been fully restored and trade established upon sound and safe lines. The country is exceedingly prosperous and well governed, and affords a splendid market for American goods.

JOHN G. LONG,
Agent and Consul-General.

CAIRO, *April 12, 1902.*

ADVANTAGES OF DIRECT STEAMSHIP COMMUNICATION WITH THE LEVANT.

The importance of the newly established direct line of steamships from New York to the Levant* is clearly recognized in this district. Although this line does not yet touch at the ports of Samsoun, Kerassund, or Alexandretta, it is hoped that before long one or more of these places will be included in its itinerary, so that, as far as direct, frequent, and economical ocean transportation is concerned, the trade relations of this region with the United States will leave nothing to be desired.

A striking evidence of the advantages of direct communication is seen in the rapid growth of the trade of the city of Hamburg with the Levant, as the result of the establishment, in 1891, of a steamship line between that port and the Mediterranean and Black seas.

The following summary is from the latest trade report of Hamburg:

Exportations from Hamburg to the Levant for 1891 and 1900.

Country.	1891.	1900.
Roumania	$249,900	$335,340
Greece	258,470	648,550
Egypt and Algeria	173,170	1,060,240
Russia (Black Sea ports)	403,700	2,396,900
Turkey in Europe	258,470	2,117,490
Turkey in Asia	87,820	867,270
Total	1,431,530	7,425,790

The increase of Turkish trade within the decade is especially noteworthy, and this section of Anatolia is in an encouragingly receptive attitude for the advances of American commerce also. The chief difficulty in the way, as so often emphasized in the CONSULAR REPORTS, is found in the delay and uncertainty resulting from the absence of direct sea communication, and when this handicap shall have been overcome there is but little doubt that our trade with Asia Minor will show an equally rapid and satisfactory growth.

THOMAS H. NORTON,
Consul.

HARPUT, *March 25, 1902.*

*ADVANCE SHEETS No. 1259; CONSULAR REPORTS No. 259.

OPENING FOR AUTOMOBILES IN SYRIA AND PALESTINE.

While it may sound strange, it is nevertheless true, that inquiries about automobiles are being made in Syria. Only one specimen, an inferior second-hand French machine, has been seen here; but it is thought that in Syria and Palestine, with their lack of railroads and street cars and with their rapidly developing carriage-road systems, automobiles would do well. A new road is now being built between Sidon and Beirut, and will soon replace the ancient bridle path. While this road will be level, others throughout this region are steep and make numerous sharp turns. Vehicles in use, therefore, must be strong and durable. Between Haifa and Nazareth, the most satisfactory carriages employed in the tourist traffic are powerful, two-seated surreys made in Buffalo, N. Y. In these parts, horses suffer greatly from the heat; this difficulty would not apply to a machine. In Beirut alone, 500 carriages are running, and hundreds more are in use in the Lebanon and in Palestine. The country is poor, and, except possibly for the accommodation of tourists, there would not at present be much demand for automobiles outside of Beirut.

The tourist traffic has more than doubled in Syria during the last ten years. At present, about 750 foreign tourists pass through Beirut annually, most of them proceeding to Baalbek and Damascus. Twice this number go through Palestine. Galilee is also growing in favor among tourists. The figures given do not include pilgrims, thousands of whom seek the holy places, nor the special excursions which lately have come into vogue. Recently, the *Celtic* was here with 820 American tourists, while the *Augusta Victoria* brought some 400. Among local physicians, there is a growing sentiment in favor of the automobile. American manufacturers may address, on this subject, Dr. Harris Graham, Beirut, Syria.

G. Bie Ravndal,

Beirut, *March 18, 1902.* *Consul.*

DECLINE IN THE VALUE OF TURKISH RUGS.

The manufacture and exportation of rugs form one of the most important features in the industry and commerce of the Ottoman Empire. The annual exportation exceeds $1,450,000 and includes about 52,000 pieces.

Of late years, the demand in Europe for rugs of a purely Turkish origin has suffered a marked decline. (It is to be noted that a considerable fraction of the rugs sold by Turkish dealers come originally from Persia.)

This slackening demand has led to an investigation of its causes by those chiefly interested in the trade. The results of this inquiry are summarized in the Turkish journal Ikdam. It is found that the decline is chiefly due to the marked inferiority of the wool now employed in the rug-weaving districts. The best grade of wool for this purpose comes from the pastoral regions along the southern half of the frontier between Turkey and Persia. Nearly all of the wool produced in this region is now exported into Persia, and but little finds its way westward into the industrial centers. It is hoped that with the construction of the Bagdad Railway the new transportation facilities will change the current of this important product and render it more accessible to the weavers of Anatolia.

From my own observation, I judge that this falling off in the demand for the rugs of Anatolia and Kurdistan is not due entirely to the quality of the wool employed. Two other factors favor the rug production of Persia in the markets of the West. The first is the more extended use in Turkey of the brilliant but fugitive aniline dyes. In Persia, the less vivid but permanent vegetable coloring matters retain their ancient vogue. Again, the artistic sense seems more highly developed in Persia; at least, there is more conformity to occidental canons of beauty as far as designs and color combinations are concerned. There is no doubt that these three factors are seriously affecting the demand for the products of Turkish looms.

There is an interesting development in the rug industry at Harput, based upon American capital, directed by a native who has been trained in carpet factories in the United States. The labor supply comes from the orphanages founded and supported at this point by American benevolence.

I am glad to note that the dyes used are exclusively of vegetable origin. The establishment seeks to cater chiefly to American tastes, and has received various orders to execute special designs for individuals in the United States.

THOMAS H. NORTON,

HARPUT, *April 7, 1902.* *Consul.*

OTTOMAN RAILROADS.

According to an imperial irade just issued, the Haifa-Damascus Railroad concession, including the 5 or 6 miles already constructed, will be bought back from the English company, in whose hands it is at present, by the Turkish Government, for the sum of 155,000 Turkish liras ($682,000). It is intended to make Haifa the port of arrival for pilgrims arriving by ship across the Mediterranean, and the Haifa-Damascus Railroad is to be connected with the proposed Damascus-Mecca Railroad now being built, at Irbid. Dr.

Schumacher (the United States consular agent), the engineer in charge of the Haifa-Damascus Railroad operations, has not as yet received instructions to hand the property over to the Turkish Government, but the latter's representative (Hamdy Pacha) has arrived on the ground with his staff, and a transfer may be looked for any day on payment of the money. It is intended to enlarge the harbor facilities at Haifa. Already, Beirut has a protected harbor.

In the Bay of Alexandretta, the Anatolian Railroad Company (German) is planning a modern harbor in connection with the Bagdad Railway. According to a statement in a late issue of the Moniteur Oriental, the popular subscription for the Damascus-Mecca Railroad now amounts to 45,949,925.15 piasters, or about $1,640,000.*

G. BIE RAVNDAL,
Consul.

BEIRUT, *April 5, 1902.*

Under date of April 15, Mr. Ravndal adds:

I read to-day in the Official Gazette of the Beirut vilayet that orders have been received from the Interior Department constituting a local commission to superintend the early construction of the Haifa-Damascus line under the auspices of the Sultan.

In this connection, it may not be amiss to state that the French railroad to Baalbec (Syria) will be finished about May 15 and ready for tourists. The completion of the rest of the line to Homs may be looked for early in September.

INQUIRY FOR RICE-MILLING MACHINERY IN SIAM.

Consul-General Hamilton King, of Bangkok, transmits, under date of March 4, 1902, a letter reading, in part:

I am desired by Prince Pra Ong Chow Sai Sanitwongse to remind you that you promised to give him full particulars about rice milling in America, if His Highness would state his needs. His wishes are:

I. To start a rice mill for making paddy to the amount of about 1,000 piculs (133,000 pounds) of white rice a day; the machinery to be driven by electricity.

II. To know what kind of machinery and boilers would be best adapted to this purpose, as regards the consumption and economy of fuel (fuel here means rice husks obtained from the mill itself).

Experience with steam rice mills in this country shows that if engines and boilers of the old system are used for making paddy into broken rice only, the consumption of fuel (rice husks) equals about half that produced; and if a condensing engine and a boiler with Galloway's tubes are employed for making paddy into white rice, the consumption about equals the fuel produced.

III. The pearling and polishing machines used in this country damage the grains very much, breaking and pounding the rice and rendering it too warm. This

*Reduced to American currency by the consul.

polishing process is also generally supposed to spoil the taste of the rice. It is desired, therefore, to know whether there are other kinds of machinery which will perform an equal amount of work and at the same time overcome these difficulties.

Most people in this part of the world prefer rice pearling by mortar, after the ancient native system. If "rice pounders" instead of other pearling machines should be adopted, would the output be decreased, and could the objectionable features mentioned be avoided?

IV. The desire in starting electric rice milling is to run vehicles by the same power. If a rice mill driven by electricity is erected—for instance, the mill mentioned in Paragraph I—the engines and boilers being the most economical in consumption of fuel that could be provided, would any power be available for other purposes, if rice husks were used for fuel? If so, how much?

Mr. King adds:

Prince Chow Sai Sanitwongse has for years been the moving spirit in the great Klong Rangsit irrigation scheme of Siam,* which has reclaimed from the jungle hundreds of thousands of acres of land, converted it into the richest rice-producing area of the country, and provided homes for about 100,000 people in the last ten years. Coming from such a source, the request is worthy the careful consideration of our producers. My previous reports to the Department on "Agricultural machinery in Siam" and "Canals and irrigation in Siam"† will furnish further information on this subject to those who are interested. Any correspondence on this question will receive prompt attention if addressed to me.

NEW STEAMSHIP LINE TO VLADIVOSTOCK.

The *Kotzu Maru*, of 1,300 gross tons and 922 register tons, which arrived recently, is the first ship of the new, or Tsuruga, line, which receives a subsidy of $70,000 from the Japanese Government.

A Japanese paper (the Tokyo Asaki) reports that the Chinese Eastern Company (a Russian organization) has made a contract with the Japanese Government for the opening of this line, to last ten years. Japan is to pay the subsidy and the Chinese Eastern Company is to allow a certain number of Japanese to serve on its ships.

Tsuruga is a new port on the west coast of Japan, opened to foreigners two and a half years ago. The port has been greatly improved for steamer accommodation. The time from Vladivostock to Tsuruga is one and a half days, and to Osaka, the great manufacturing city, less than twenty-four hours.

In connection with this line, the Chinese Eastern fleet will have direct communication with the United States. Whether Japanese ships or Russian are to sail to the United States is not quite clear.

*See ADVANCE SHEETS No. 1300 (March 27, 1902).

†ADVANCE SHEETS No. 636 (CONSULAR REPORTS No. 234) and No. 1300.

So far as the Chinese Eastern steamers are concerned, it is said they can not carry coal enough to cross the Pacific. One of them (the *Byrea*), launched in 1901, has just been examined and her boilers found useless.

While Russia is making strong efforts to extend her commerce in the East, every ship on the Chinese Eastern lines runs at a loss. Steamers come in with perhaps from 16 to 300 tons of freight and from ten to twenty passengers, but they must run according to schedule to obtain the subsidy. Under present tariff conditions, it is not likely that freight will come to Vladivostock in large quantities.

The schedule of the Chinese Eastern service, which went into effect with the new year, is:

(1) Shanghai, Nagasaki, and Vladivostock; every eighteen days.

(2) Shanghai, Port Arthur, Chemulpo, Nagasaki, Vladivostock, and return; two trips per month.

(3) Shanghai, Port Arthur, Nagasaki, Fusan, Gensau, Vladivostock, and return; monthly service.

(4) Chefoo, Port Arthur, Dalny, and return; every day except Friday from Chefoo and Dalny; every day except Wednesday from Port Arthur.

(5) Port Arthur, Nagasaki, Vladivostock, and return, calling at Sudsuzne (Evstafia) Bay, St. Olga Bay, Port Korsor-Kofsky, Imperatorskaia, Port Alexandrofsky, and De Kastris Bay.

(7) Vladivostock to Petrapavlofsk and Bering Sea, calling at ports of the Sea of Okhotsk, Kamchatka, and Bering Sea.

R. T. GREENER,
Commercial Agent.

VLADIVOSTOCK, *February 14, 1902.*

NOTES FROM SIBERIA.

FOREIGN SHIPPING PROHIBITED.

All contracts made hereafter for transportation of merchandise from European Russia to Siberia and intermediate ports will contain a clause that such goods must be conveyed on ships flying the Russian flag. This refers mainly to naval supplies, but the Ministry of Finance has perfected arrangements for the shipping of Russian products to the Far East.

On May 1, 1902, the entire maritime coast, from Posiet to the Bering Sea, will be closed to foreign ships by imperial decree. This will seriously affect the coal interests of Sakhalin. At least twenty-four ships yearly are now necessary to bring the coal cargoes required for Vladivostock from Sakhalin.

PORT ARTHUR IMPROVEMENTS.

Port Arthur Harbor, whose entrance resembles that of San Francisco, is very shallow on the western side. A contract has been let for dredging this side, to allow vessels of larger tonnage to enter.

A canal is also to be cut across the peninsula, to give more direct access to Port Arthur.

TELEGRAPHIC PROGRESS.

A sign of progress is the receipt of a telegram from Sebastopol in twenty-four hours, instead of two or three weeks, as heretofore.

SIBERIAN RAILROAD.

An official report gives the estimated additional cost necessary to complete the line as 70,000,000 rubles ($36,050,000). The road will issue loans on cargoes of grain at different stations along the line.

An increase in passenger rates went into effect February 21, 1902, for distances over 3,010 versts (1,995 miles). For additional distances exceeding 70 versts (46.4 miles) the increase per 1,000 versts (663 miles) will be: First class, 14.25 rubles ($7.34); second class, 8.55 rubles ($4.40); third class, 5.70 rubles ($2.93). This will make—

	Rubles.
First-class fares	320.75=$155.08
Second-class fares	212.75= 109.56
Third-class fares	118.50= 61.02

CHINESE EASTERN RAILROAD.

On the western branch, between the stations Manchuria and Harbin, traffic is now open for second, third, and fourth class passengers. No first-class tickets are yet issued.

The Sungai bridge, 120 versts (79.5 miles) from Harbin, is not officially opened, on account of the necessity of additional work, but trains cross without stop.

Steamers are contracted for to ply between Harbin and Blagoveschensk, via the Sungari River and the Amur. This will further facilitate communication between these cities and Vladivostock.

R. T. GREENER,
Commercial Agent.

VLADIVOSTOCK, *February 17, 1902.*

THE TIMBER MARKET IN CHINA.

I am convinced that the future demand in China for Pacific coast lumber will be both extensive and permanent.

For more than 1,000 miles up the great valley of the Yangtze there is practically no timber in sight. The plains, hills, and mountains are absolutely bare of forestry, except where, here and there, a few trees have been carefully preserved.

South of the Yangtze, there is some timber to be found on the Min River, in the province of Fukien, but it is mostly a young growth of poor pine. North of the great river, there is no timber until the Yalu River, which forms the boundary between Korea and Manchuria, is reached. In the Yangtze Valley, the only available timber is far up the River Han, on the north side, and along the head waters of the streams in the province of Hunan, on the south. This timber is floated in great log rafts down the river to the market at Hankau. It is mostly a soft pine, of small bulk and young growth.

A hard wood, very much resembling ash, comes from the provinces north of Hupeh, and is extensively used in the manufacture of guns at the great Hankau arsenal.

A considerable quantity of timber is brought into China from Korea by the Chinese junks, which sail along the coast and up many of the rivers. Most of it consists of fir and soft pine logs, flattened, squared, or round. It is afterwards cut up by the usual whipsaw process in vogue in China. In many instances, the contractor buys the logs and has them carried to the building he is erecting, where he cuts the lumber to suit his requirements.

Japan also furnishes a large amount of timber to China, and, in the market for railroad ties or sleepers, is the main competitor of the Pacific coast of the United States. The Japanese ties are both hewn and sawn, and are mostly of a hard wood resembling oak, but rather brash and easily broken. They appear to make a good railroad tie, although there is some complaint that they do not last long. It is thought, however, that this defect could easily be remedied by cutting down the trees at the time of the year when they contained the least sap. These ties come from Hokkaido, the northern island of Japan.

On the Island of Sakhalin, the great penal colony of Russia, there is another possible supply of large quantities of timber for the markets of China. This island has splendid forests of fir and pine.

For furniture and interior finish, a hard red wood known as teak is extensively used. This and similar timber is brought in considerable quantities to China from the Philippines and other southern islands. These are exceptionally fine woods, but are becoming expensive.

USES OF LUMBER IN CHINA.

In China, probably more wood is used for coffins than for any other purpose. The coffins are made of lumber from 4 to 10 inches thick. It is not a high estimate to say that from 8,000,000,000 to 10,000,000,000 feet of lumber are annually thus utilized.

The great majority of houses are built of mud and bricks, or mud and straw or millet stalks; very little lumber is used. The roofs are made of either tiles or straw and mud.

Next to coffins, the greatest use for lumber in China is for boats. While there are no statistics on the subject, it is safe to say that the number of craft runs into the millions. The vast coast line, the enormous rivers, the wonderful canal systems of China are all teeming with boats of every description, propelled by steam, sail, towline, or oars operated by both hand and foot. Through vast areas of country, rivers and canals form the only highways; in some sections, they are more numerous than the common roads in the most densely populated agricultural districts of the United States.

Enormous quantities of wooden buckets and small wooden tubs are used in every district of China; in my opinion, material for the manufacture of these articles could be secured from the slabs that are now wasted in Oregon and Washington sawmills. Oregon pine would make most satisfactory buckets and tubs for Chinese use.

SAWMILLS IN CHINA.

I have been able to locate only two mills in all of China. One is near Fuchau, and has but a small capacity; the other is at Niuchwang, and has just been started. The latter is a small, single circular-saw mill, which cuts about 2,000 feet a day. This mill was imported from Michigan, and seems to meet the requirements. I believe that a good many of these small mills can be sold in China; certainly, a number could be used to advantage at Tientsin, Shanghai, Hankau, and other places. Cheap mills, built for cutting a few thousand feet of light logs a day, would be the most likely to meet with sale.

HENRY B. MILLER,

NIUCHWANG, *February 14, 1902*: *Consul.*

COTTON GOODS IN CHINA.

Consul-General J. Goodnow sends from Shanghai, March 15, 1902, statement showing the principal region of consumption of American cotton goods in China during the last eight years. This table, Mr. Goodnow notes, is of importance in connection with the proposal to substitute an additional tariff for the abolition of likin (transit dues). There is very little likin in the region where our cottons are consumed, in comparison with that in other parts of the Empire.

Comparative table of imports and reexports of American cotton goods at Shanghai, showing principal distributing markets.*

Description.	Drills.	Sheetings.	Jeans.	Total.	Per cent of total.†
1901.	*Pieces.*	*Pieces.*	*Pieces.*	*Pieces.*	
Total import at Shanghai	1,639,503	2,827,884	97,500	4,564,887	
Total reexport from Shanghai	1,566,494	3,076,925	151,507	4,794,926	
Reexports to—					
Tientsin	428,326	1,283,438	54,910		
Niuchwang	537,556	959,415	47,230		
Chefoo	158,826	640,213	21,615		
Total reexports to three northern ports	1,124,708	2,883,066	123,755	4,131,529	86
Total reexports to—					
Chinkiang	80,143	17,560			
Wuhu	13,995	4,285			
Kiukiang	13,330	8,655			
Hankau	215,210	35,440			
Total reexports to four Yangtze River ports	322,578	65,940		388,518	8
1900.					
Total import at Shanghai	825,701	2,292,906	136,841	3,255,448	
Total reexport from Shanghai	601,044	1,665,161	58,775	2,324,980	
Reexports to—					
Tientsin	131,550	662,095	17,620		
Niuchwang	107,585	415,925	9,380		
Chefoo	103,293	405,964	10,900		
Total reexports to three northern ports	342,428	1,483,984	37,900	1,864,312	80⅛
Total reexports to—					
Chinkiang	49,597	6,810			
Wuhu	12,240	1,450			
Klukiang	9,570	4,870			
Hankau	103,831	40,870			
Total reexports to four Yangtze River ports	175,238	54,000		229,238	9⅞
1899.					
Total import at Shanghai	1,607,710	3,960,197	126,000	5,693,907	
Total reexports from Shanghai	1,472,516	3,446,630	107,150	5,026,296	
Reexports to—					
Tientsin	518,495	1,953,760	53,670		
Niuchwang	546,340	1,063,615	20,480		
Chefoo	138,115	438,634	8,040		
Total reexports to three northern ports	1,202,950	3,456,009	82,190	4,741,149	94⅓
Total reexports to—					
Chinkiang	49,985	6,730			
Wuhu	15,900	1,680			
Klukiang	7,845	5,400			
Hankau	127,770	33,519			
Total reexports to four Yangtze River ports	201,500	47,329		248,829	4⅞⅛

* Compiled by Wisner & Co.

† Percentage of total reexports from Shanghai taken by three northern ports.

Comparative table of imports and reexports of American cotton goods, etc.—Continued.

Description.	Drills.	Sheetings.	Jeans.	Total.	Per cent of total.
1894.	*Pieces.*	*Pieces.*	*Pieces.*	*Pieces.*	
Total import at Shanghai	740,634	1,256,182	26,000	2,022,816	
Total reexport from Shanghai	611,603	1,007,840	27,460	1,646,903	
Reexports to—					
Tientsin	287,931	701,088	22,620		
Niuchwang	128,330	265,670			
Chefoo	47,205	87,030	1,060		
Total reexports to three northern ports	463,466	1,053,788	23,680	1,540,934	93½
Total reexports to—					
Chinkiang	19,585	4,835			
Wuhu	2,790	60			
Kiukiang	1,470	60			
Hankau	78,300	320			
Total reexports to four Yangtze River ports	102,145	5,275		107,420	6½

Notes.

The stock carried forward on December 31 of each year was estimated as follows:

	Pieces.
1898	306,000
1899	587,780
1900	1,556,240
1901	1,341,650

The Boxer outbreak occurred in June, 1900, and business with Tientsin and Niuchwang was entirely suspended during the rest of that year, and was much restricted during 1901.

TRADE OF CHINA IN 1901.

The general trade of China in 1901 recovered rapidly from the marked depression of 1900. This recovery was notable, in spite of many hindrances. There was much unwillingness among the native traders to ship goods to the north while the troops were still there and the Court had not returned to Pekin. The disastrous floods in the Yangtze Valley and the unsettled state of Manchuria were also disturbing factors. It was not known until September what tariff would be decided on in the peace protocol. In spite of these conditions, the total imports into China in 1901 exceeded those of 1899, which up to that time had been the banner year. The export trade, owing to the floods and the disturbed condition in Manchuria and the other northern provinces, while greater than in 1900, did not reach the figures of 1899.

The total net imports and exports for the three years just passed are, as reported by the imperial maritime customs:

Year.	Imports.		Exports.	
	*Haikwan taels.**		*Haikwan taels.**	
1899	264,748,456	$193,266,472.88	195,784,832	$142,922,927.36
1900	211,070,422	158,302,918.00	158,996,752	119,232,564.00
1901	268,302,918	193,178,100.96	169,656,757	122,152,865.04

*The value of the haikwan tael in 1899 was given by the imperial maritime customs as 73 cents; in 1900, 75 cents; in 1901, 72 cents.

I have given the value of the haikwan tael in the several years at the average sight exchange on New York.

My figures for the imports from the United States are not as stated in the imperial maritime customs returns. The reason I gave for this discrepancy in 1900 is unchanged. The imperial maritime customs credits the trade to the country from which and to which the carrying ship clears, without taking any note of the country in which the goods originated (except in the case of cotton goods and kerosene) or for which they are destined. This method of tabulation is especially unfavorable to the United States. Goods shipped by the Canadian Pacific steamers from the United States are credited to British America; goods shipped by the Japanese line from Seattle and San Francisco are credited to Japan; goods shipped via London are credited to Great Britain; goods shipped via Hongkong are credited to Hongkong. The imperial maritime customs thus only credits us with those goods shipped on American lines and cleared from United States ports to ports in China.

For this reason, I am not able to give with perfect accuracy the imports of 1900 and 1901 from the United States. The following tables have been compiled after thorough investigation and interviews with merchants, shipping companies, and customs officials. The total imports from the United States during the three years just passed were, approximately:

Year.	Value.	
	*Hk. taels.**	
1899	30,000,000	$21,900,000
1900	24,723,136	18,542,352
1901	35,339,003	25,444,082

*The value of the haikwan tael in 1899 was 73 cents; in 1900, 75 cents; in 1901, 72 cents.

In the following detailed statement, the cotton goods and kerosene are marked "American" in the customs returns. The flour and timber imported all come from the United States. The cotton flannel, while not marked "American" in the customs returns, is separated from the Japanese product. The item for "sundries" seems

large; the total of sundries is given by the imperial maritime customs returns as 24,071,808 taels ($17,331,802).

Imports from the United States in 1900 and 1901.

Article.	1901.		1900.	
	Hk. taels.		*Hk. taels.*	
Drills	4,834,879	$3,481,113	2,351,479	$1,763,609
Jeans	244,328	175,916	371,583	278,688
Sheetings	7,636,714	5,498,434	6,236,255	4,600,191
Kerosene	8,638,501	6,219,721	6,304,384	4,728,288
Flour	4,726,962	3,403,413	3,329,868	2,497,401
Timber	1,732,648	1,247,507	1,034,567	775,925
Tobacco	1,250,000	900,000	900,000	675,000
Clothing	200,000	144,000	100,000	75,000
Raw cotton	360,000	259,200	360,000	270,000
Machinery	200,000	144,000	450,000	337,500
Household stores	800,000	576,000	500,000	375,000
Beer, wine, etc	350,000	252,000	210,000	157,500
Iron	250,000	180,000	250,000	187,500
Lead	100,000	72,000	100,000	75,000
Leather	250,000	180,000	150,000	112,500
Clocks and watches	125,000	90,000	75,000	56,250
Sundries	2,500,000	1,800,000	2,000,000	1,500,000
Cotton flannel	1,139,971	820,779	851,593	638,694
Total	35,339,003	25,444,082	25,574,736	19,181,046

EXPORTS.

The imperial maritime customs values the exports from China to the United States in 1901 at 16,572,988 taels ($11,932,551.36). The exports from Shanghai alone in 1901 were valued at $9,116,287.57 gold, by the invoices filed in this office. I have no means of knowing the shipments of 1901 through our other consulates. In 1900, they amounted to $8,500,000. I do not think that in 1901 they were less than $7,500,000. The exports from Shanghai to the United States during the two years were:

Value in United States gold of exports from Shanghai to the United States, as declared at the United States consulate.

Article.	1900.	1901.
Antimony	$15,013.43	$2,411.77
Albumen	3,945.41	6,305.89
Bristles	35,749.86	73,421.99
Calfskins	71,957.54	17,834.47
China grass	.....	14,392.91
Chinese clothing	13,410.63	14,194.06
Cotton	.....	8,296.35
Cowhides	1,002,074.08	559,687.25
Dogskin rugs	.....	9,158.12
Feathers	15,944.53	3,866.33
Furs	77,571.03	48,355.54
Gallnuts	33,198.90	19,255.65
Goatskins	780,882.87	995,215.71

Value in United States gold of exports from Shanghai, etc.—Continued.

Article.	1900.	1901.
Hats, rush	$24,148.86	$13,459.01
Matting	.....	19,246.54
Musk	45,142.70	58,353.30
Nut oil	55,700.61	23,611.87
Pongees	.....	2,423.93
Rhubarb	13,866.12	.....
Robes	.....	20,429.68
Rugs	39,581.87	5,970.15
Silk:		
Raw	7,102,764.56	4,717,239.81
Waste	37,460.04	.....
Straw braid	421,618.97	357,882.73
Straw hats	.....	31,119.05
Sheepskins	36,715.56	.....
Sheep's wool	651,502.05	.....
Skins (various)	47,320.26	5,475.34
Sundries	108,542.69	94,826.55
Tea	3,463,545.64	1,615,307.01
Wool	.....	388,547.56
Total	14,097,658.21	9,116,287.57

The decrease in the exports from China is undoubtedly accounted for by the disturbed political conditions in the north of China, especially Manchuria, and by the floods in the Yangtze Valley. The decrease in tea, however, can only be accounted for by the increasing carelessness of preparation.

According to these figures, our total trade with China (exports and imports) in 1901 was $42,000,000, as against about the same amount in 1900. The imports from the United States increased about $7,500,000, while the exports to the United States decreased about the same amount.

All lines of imports increased, except iron, lead, and machinery.

COTTON GOODS.

The importation of cotton goods increased from a gold value of $6,719,487.50 in 1900 to $9,155,467.12 in 1901; from 3,255,752 pieces in 1900 to 4,734,462 pieces in 1901. The total imports of drills, jeans, and sheetings from all countries in 1899, 1900, and 1901 were:

Article.	1899.	1900.	1901.
	Pieces.	*Pieces.*	*Pieces.*
Drills	1,759,201	927,511	1,762,212
Jeans	233,009	276,554	152,891
Sheetings	4,812,062	2,989,650	3,254,849
Total	6,804,272	4,193,715	5,169,952

American cottons increased more in imports than did cottons from other countries. The figures for our trade are:

Article.	1899.	1900.	1901.
	Pieces.	*Pieces.*	*Pieces.*
Drills	1,626,107	805,892	1,649,626
Jeans	126,303	137,366	152,891
Sheetings	3,975,903	2,312,494	2,840,518
Total	5,728,313	3,255,752	4,587,512

This increase of consumption of American cotton goods is accounted for by the fact that the trade with the northern provinces bordering on the Gulf of Pechili was again partially open to us in 1901, though closed during most of 1900 by the Boxer trouble. Eighty-six per cent of the total importation of our cotton goods in 1901 went through the ports of Niuchwang, Tientsin, and Chefoo, for consumption in the provinces tributary to those ports. Probably, three-fourths of this went into Manchuria. The people of the north have not yet fully recovered from the results of the Boxer uprising and the retaliatory punishments. The fact will be noted that the cheaper qualities of cotton goods are finding favor. The fall of exchange has not improved wages (paid in silver) for the average Chinese; hence, he must buy a cheaper quality of goods. It is expected that the return of the Court to Pekin, the vigorous government of Yuan Shikai, in Pechili, and the lessened acuteness of the Manchurian question will give us again, in 1902, a good trade with the north.

Cotton flannel, used in central China, shows a healthy growth. The customs statistical secretary says:

> The trade in cotton flannels is growing; these goods come chiefly from America and Japan. American gray and white shirtings are gaining a footing in central and southern China, and there is a growing importation.

It will be noted that, while the great bulk of our cotton goods is still absorbed in the north, a less percentage was consumed there in 1901 than in 1899. In 1899, 94⅓ per cent of the total imports of American cotton was reexported from Shanghai to Niuchwang, Tientsin, and Chefoo; in 1900, 80⅛ per cent; and in 1901, 86 per cent.*

FLOUR.

The importation of flour increased largely, in spite of the fact that most of the soldiers and men of war were withdrawn from China by the middle of the year, and also in spite of the fact that an American flour mill at Shanghai has turned out 350 barrels per day during the year. We are to be congratulated that our treaty commissioner

*See ADVANCE SHEETS No. 1325 (April 25, 1902).

succeeded in keeping flour on the free list. The value of American flour imported into China for the past three years has been:

1899	$2,328,332.81
1900	2,497,401.00
1901	3,403,412.64

TOBACCO.

The importation of American cigars and cigarettes shows a steady increase. The figures for three years are, approximately:

1899	$635,321.19
1900	758,739.75
1901	900,000.00

The importers of American cigarettes have devoted much time to suppressing the efforts of the native manufacturers who were making inferior cigarettes of Chinese tobacco and stamping them with well-known American brands. We have no trade-mark treaty with China, but I succeeded in getting from three viceroys, whose provinces cover all central China, proclamations, having the effect of law, forbidding the manufacture, sale, or possession of imitations of the American brands. Our importers report to me that these proclamations have practically stopped the fraudulent imitations of their cigarettes. These proclamations are the only ones of their kind ever obtained from viceroys by an official of any foreign nation, and it is hoped the precedent thus established will make the negotiation of a trade-mark treaty comparatively easy.

TIMBER.

The importation of timber is steadily increasing, as shown below:

1899	$955,313.04
1900	755,925.25
1901	1,247,506.56

KEROSENE.

The importation of kerosene oil has again largely advanced, and this shows increased consumption, for there has been no enlargement of the stocks on hand. The proportion of oil imported in bulk steadily increases. The following shows the trade:

Kerosene oil.	1899.	1900.	1901.
	Gallons.	*Gallons.*	*Gallons.*
American	40,724,989	34,447,112	57,759,677
Russian	35,695,116	32,708,757	32,486,070
Sumatran	11,993,202	16,424,155	40,640,049
Borneon	.....	.....	223,790
Japanese	.....	.....	8,920
Total	88,413,307	83,580,024	131,118,506

HOUSEHOLD STORES.

The importation of beer, wine, spirits, and household stores has almost doubled, and to the best of my belief we are holding our own in the increase. The exact figures of this trade are not obtainable here.

MACHINERY.

The importation of iron, lead, and machinery was smaller last year. No new factories or mills have been built during the year.

TRANSPORTATION.

The difficulty of obtaining room for freight from the United States to China did not decrease during the year. Two lines have extended their service so that they now reach Pacific coast points from China. In 1901, 15,257 vessels entered at and cleared from Chinese ports in the foreign trade. Of these, 204 carried the American flag. The total inward and outward tonnage was 12,855,028, of which the American ships carried 356,943. Our trade with China represented about 14 per cent of her total foreign commerce. We furnished only 1⅓ per cent of the shipping which carried that trade. To quote from my report of 1900:

> I would call attention to the fact that all steamer lines engaged in this trade, except the steamers owned by Americans, are subsidized in some form by their respective governments. In some cases the subsidy is direct; in others it takes the form of a contract for carrying mail at rates which are far beyond prices paid for any other freight. The Nord Deutscher Lloyd (German), the Messageries Maritimes (French), the Peninsular and Oriental and the Canadian Pacific (British), the various Japanese lines, the Russian line—all are subsidized directly or by liberal mail contracts. Even the Toyo Kisen Kaisha (Japanese), running from San Francisco in direct competition with the American line from that port, is subsidized by the Japanese Goyernment. Recently, the Nippon Yusen Kaisha (Japanese), sailing from Seattle in competition with our lines, has begun to receive a subsidy from the Japanese Government. In sharp contrast with this policy of other governments, we pay no subsidies to American lines bringing our goods to this coast, and pay only first-class freight rates on the actual weight of our mails carried between the United States and China.

TARIFF.

Import duties were increased to an effective 5 per cent in September, and the free list was abolished on everything except gold, silver, and cereals. The free list had covered tobacco, household stores, and practically everything for the use of foreigners. On goods previously dutiable, the "effective 5 per cent" increases the former duty about 50 per cent. Negotiations are now in progress to convert the 5 per cent ad valorem duty into specific duties so far as it is possible. The increase of duty is too recent for comment on its effect.

SHANGHAI HARBOR.

The improvement of the Whangpoo River at Shanghai, provided for in the peace protocol, is at present blocked by the opposition of the viceroy at Nankin, who claims that the plan as formulated is an infraction of the sovereignty of China. That the river shall be dredged, straightened, and conserved is important to shipping interests. There is barely 12 feet of water on the bar at Woosung at low tide, and the entire river from Shanghai to the mouth of the Whangpoo River is silting up with increasing rapidity.

TRADE TREATIES.

Only Great Britain has as yet entered into negotiations looking toward amendments to the trade treaties. The Chinese Government has appointed two commissioners to negotiate with representatives of other nations regarding the amendments to the trade treaties contemplated in the protocol. So far as possible, the British propositions have been kept secret. It is known, however, that they contemplate—

(1) A provision that there shall not be at any time a prohibition of the exportation of rice. Heretofore, in times of scarcity, the export of rice has been forbidden by special proclamations of the viceroys.

(2) A provision that the importation of foreign salt shall be permitted. Such import has been forbidden, and the sale of salt has been a Government monopoly, providing a large source of revenue to the Imperial Government.

(3) An increase of the import duty on foreign goods to 15 per cent, in consideration of an agreement by the Chinese Government that it will abolish all likin on native and foreign products throughout the Empire. The British-China Association has declared against this scheme of the British commissioner. The American-China Association has also protested, claiming that 70 per cent of the entire imports from the United States goes for consumption into the provinces around the Gulf of Pechili, comprising, roughly speaking, one-fourth of the Empire. The likin in those provinces is so light that only one-fourteenth of the entire amount is collected in that section of the Empire. In other words, likin in Central and South China is three to four times as heavy as it is North China, where our goods are mainly consumed. Our association argues that it would be a bad bargain for us to consent to the same increase of duty on goods going into the northern provinces, where the likin is light, as would be necessary on goods going into Central and South

China, to compensate for the heavy likin now being collected there. Our association also points to the fact that previous treaties have provided that a payment of an extra 2½ per cent at the seaboard shall free foreign goods from all inland taxation whatsoever; but that, in spite of this, the likin has been collected in the shape of landing taxes and in taxes on the stores where foreign goods have been exposed for sale. It argues from this experience that an abolition of likin by treaty may not abolish it in fact.

JOHN GOODNOW,
Consul-General.

SHANGHAI, *April 5, 1902.*

TRADE OF MANCHURIA IN 1901.

AMERICAN FLOUR.

The result of the year's trade shows that American flour is increasing in popularity even in this great grain-producing country, where corn, wheat, millet, and beans grow to perfection. The first considerable shipment of flour to this port was in the year 1899, when the quantity imported amounted to 104,854 haikwan taels* ($75,547). The following year, on account of the troubles in China, this amount was increased to 231,957 haikwan taels ($167,171). This greatly augmented importation, due to the abnormal conditions, led to the prediction that there would be a considerable falling off in future imports, but the amount brought in during the year 1901—176,321 haikwan taels ($129,243)—indicates that the Chinese desire for American flour has become permanent, and that it will continue to be imported in increasing quantities. The Shanghai flour, made from Chinese wheat and manufactured by the modern-roller process, is an active competitor and sells for about 10 cents less per sack of 50 pounds.

These figures do not include all of the flour imports for the year, as a larger amount, no doubt, was brought into Manchuria via Port Arthur, where there are no customs, and consequently no returns.

COTTON AND COTTON GOODS.

The climate of Manchuria is very cold, the thermometer falling as low as 20° to 50° F. below zero, according to the locality. It would be expected that in such a climate there would be an excellent market for woolen goods, but such is not the case. Very few

* In 1899 the haikwan tael was valued by the United States Mint at 72.05 cents; in 1900, 72.07 cents; in 1901, 73.3 cents.

woolen goods are used. Padded cotton garments and sheep and goat skins constitute the clothing of the poorer classes, and padded silks and fine skins and furs are worn by the well-to-do.

Cotton for padding garments, cotton yarn for making cotton cloth, and cotton goods constitute much over half of all the imports. The total imports, native and foreign, into this port for the year amounted to 33,852,240 haikwan taels ($24,813,692), and in this, cotton, cotton yarn, and cotton goods figured to the extent of over 20,000,000 haikwan taels ($14,660,000).

The great item in the trade of Manchuria, therefore, is clothing. The rough life of these hardy people requires a strong and substantial cloth, much more so than is demanded in the milder sections of China, where the conditions of life are much less harsh.

The supply of the entire trade can be roughly divided into three equal parts: One-third from native goods manufactured by handlooms from native cotton; one-third cotton drills, jeans, and sheetings from the United States; and one-third, consisting chiefly of cotton yarns, from India, England, Japan, and China.

Indian yarn to the amount of 3,900,000 haikwan taels ($2,858,700) arrived during the year, and has captured the market. Japanese and Chinese yarn aggregating 455,000 haikwan taels ($333,000) and 259,000 taels ($189,847), respectively, were also imported. This yarn is taken into the interior, and is woven into cloth by handlooms in the homes of the natives.

Native cloth, made on handlooms in other parts of China, was imported to the value of over 7,000,000 taels ($5,131,000). This, together with the imported yarn, constitutes over half the value of cotton shipped into Manchuria.

From this, it will be seen that the greatest competitor that America has in this market for her cotton goods is Chinese cotton goods made from yarn from the mills of India and from the mills at Shanghai and other places in China, and manufactured into cloth on handlooms by the Chinese themselves. The native cotton cloth is considered stronger than the imported, and its popularity is due to this fact. I inclose samples of the native cloth; also samples of Japanese and Indian yarn.*

Chinese nankeen cloth, 18 inches wide, costs from 8 to 12 cents Mexican (3.8 to 5.7 cents) per yard. American cotton cloth 30 inches wide ranges from 15 to 25 cents Mexican (7.2 to 12 cents) per yard; American cotton cloth 34 inches wide ranges from 12 to 22 cents Mexican (5.7 to 10.5 cents) per yard.

Yarns Nos. 6, 8, 10, and 16 are imported, forty packs to a bale of 360 catties (578.8 pounds), at the following prices:

* Filed in the Bureau of Foreign Commerce, where they may be examined by parties interested.

Description.	Indian yarn.		Japanese yarn.	
	Hk. taels.		*Hk. taels.*	
No. 6.....per bale...	72	$52.77	77	$56.44
No. 8.....do.....	76	55.71	78	57.17
No. 10.....do.....	82	60.11	75 to 81	$54.98 to 59.37
No. 16.....do.....	106	77.70	96 to 108	70.35 to 79.16

So far as known, cotton yarn is not imported from America; it comes mostly from India, Japan, and China. The cheap labor of these last three countries is probably the reason for this, especially when it is remembered that much raw cotton is shipped from the United States to Japan and China.

The importation of Japanese cotton yarn has fallen off very materially since 1899, when it amounted to 982,438 haikwan taels ($707,847). This year, it was 455,598 haikwan taels ($333,953), or a reduction of over one-half. During this same period, the importation of Indian yarn increased from 40,476 piculs (5,396,800 pounds) in 1899 to 43,850 piculs (5,846,666 pounds) in 1901. For a number of years, this article has been steadily growing in favor in Manchuria.

COTTON FLANNEL.

These goods are growing in popularity in Manchuria, and, if special efforts were made to increase their use, a large and permanent market could be created. American cotton flannel possesses the most important requisites for clothing in this portion of China, viz, strength, warmth, and cheapness. Of foreign underwear and clothing, little is known as yet, and only very small quantities have gone far inland. It seems that this would be a splendid opportunity for our manufacturers to enlarge their trade by judicious advertising. In 1899, the importations from America amounted to 56,647 haikwan taels ($40,814) and in 1901 to 104,884 haikwan taels ($76,880). From Japan, in 1899, they were 11,763 haikwan taels ($8,476), and in 1901, 9,398 haikwan taels ($6,889).

COTTON BLANKETS.

The value of cotton blankets imported in 1899 was 27,141 haikwan taels ($19,535); in 1901, it amounted to 60,612 haikwan taels ($44,429). This increase was in Japanese goods, and is an evidence of the careful attention paid by the Japanese to China's wants. These goods will probably meet with an advancing demand, and sales should grow to very large proportions.

Another class of cotton goods that is becoming popular throughout Manchuria is corduroy—mostly brown—used for jackets.

KEROSENE.

American kerosene was imported in 1901 to the amount of 3,172,000 gallons, or an increase of 1,000,000 gallons over the largest imports of any former year.

The returns for the year, however, do not show the true imports of kerosene into Manchuria, for the reason that large quantities came through Dalny and Port Arthur, whence it was sent to the interior by train. No tariff was collected on this oil, nor were any statistical returns made of it. Most of the oil imported via these two ports was of Russian origin.

Bean oil has heretofore been used by the natives for lighting purposes; but now they are enabled to sell the bean oil and purchase kerosene, profiting by the exchange and getting a much improved light. The cheaper transportation which should follow the introduction of railroads would probably cause an enormous increase in the consumption of kerosene.

American kerosene in Manchuria is meeting with the strongest kind of opposition from Russian oil. The great advantage of the American product is its superiority; the Russian is cheaper. American kerosene will, no doubt, be seriously handicapped by the more favorable rates that the railroad will give to the Russian product.

TRADE PROSPECTS.

While cotton goods, kerosene, and flour constitute the great bulk of the trade of the United States with Manchuria, commercial possibilities are in no wise limited to these articles. Notwithstanding the fact that the trade of this port was most seriously disturbed by the recent troubles in China, the future is bright. The earning power of the people of Manchuria is far ahead of that of most sections of China, and that their capacity to purchase foreign wares is becoming greater is shown, as far as the United States is concerned, in the increase of American goods imported, from 1,800,223 haikwan taels (about $1,800,000) in 1891 to 6,474,895 haikwan taels ($4,665,162) in 1899, and almost as much for 1901. The general increase of foreign goods imported was from 6,060,683 haikwan taels (about $6,000,000) in 1891 to 21,775,930 haikwan taels ($15,689,558) in 1899 and to 17,148,289 haikwan taels ($12,569,696) in 1901.

OTHER IMPORTS.

The following imports show considerable increases over 1899: Soap, needles, nails, lamps, white lead, household stores, Japanese handkerchiefs, music boxes, cigarettes, sewing machines, aniseed, gunny sacks, beer, candles, mirrors, matches, perfumery, and seaweed. Although the trade in these articles is not yet very large, it bids fair to grow to good proportions.

In 1899, cigarettes to the value of 23,000 haikwan taels ($16,572) were imported, and last year 152,650 haikwan taels ($111,892). These cigarettes are chiefly of American manufacture, and the increase is largely due to judicious advertising.

Although a large quantity of fine tobacco is grown in this country and much is exported, the importation of cigarettes will, no doubt, increase from now on. The coolie uses them, and when he begins the consumption of any article the extent of its increase can not easily be approximated.

Hand sewing machines that sell for $15 to $30 Mexican ($7.20 to $14.40 gold) are beginning to find a market. If a machine capable of doing fair work could be sold at $5 or $6 Mexican ($2.06 or $2.48), the trade could be enormously developed.

Cheap articles that come within the means of all classes in China are the ones that have an extensive market. Before a Chinaman will ride on the train, he will figure the cost of inn bills and of shoes worn out, and if it proves cheaper to walk he will walk, not taking into account the loss of time or his personal discomfort. In buying a sewing machine, the great consideration is first cost. The amount and quality of work the machine will do and the ease of operation are unimportant considerations. In designing articles for the Chinese trade, the fundamental feature is cheapness. Ornamentation is desired, but it must have no effect upon the price.

Paper.—Steamers brought foreign paper to the value of 48,384 haikwan taels ($35,465), a decrease of one-third from 1899, and native paper to the value of 295,000 haikwan taels ($216,235), while the junks brought native paper to the value of 817,557 haikwan taels ($599,269).

The foreign paper is mostly used for cards and printing. Of the native product, 650,841 haikwan taels ($477,066) is lohai paper, from the province of Fukien, and is known as joss paper, used in the form of sycee and burned as a sacrifice.

Very little glass is used for windows; native paper made from old rope is generally seen.

I send samples of both papers.*

EXPORTS.

The imports into Manchuria from the United States are sufficient to warrant a permanent direct steamship service to the new port of Dalny, but in exports from Manchuria to the United States the case is quite different. Considerable attention has been given the subject, and it is found that the lack of return cargo is the serious drawback to a direct steamer service with the eastern terminus of the Siberian Railroad. Below I give a list of the chief exports in which

* Filed in the Bureau of Foreign Commerce.

the United States might acquire considerable interest, and I forward samples of hemp, jute, wild silk, and beans.*

Bean cake and beans.—Bean cake is exported in great quantities to Japan and southern China. In Japan, it is used as a fertilizer for rice and other crops, and in China for fertilizing sugar cane. The average export price is from $12 to $16 gold per ton.

It is thought that this bean cake might be used to advantage in the cane fields of Hawaii and possibly in the beet-sugar fields of California.

Small green beans are largely exported to southern China and Japan for the manufacture of vermicelli. These beans usually sell at 5.30 to 9.50 taels ($3.88 to $6.96) per picul (133⅓ pounds). Other beans are also exported to southern China and Japan for preparing soy, the basis of Worcestershire sauce and other condiments.

It is thought that these beans would bear transportation to our Pacific coast ports, where they could readily be manufactured into the various condiments that are now purchased from other countries. Their price is from 5 to 7.40 taels ($3.66 to $5.42) per picul (133⅓ pounds).

Wild silk.—Wild silk might also be used to advantage in the United States. Its export during 1901 was valued at 920,236 haikwan taels ($674,533) and in 1899 at 2,362,625 haikwan taels ($1,702,271). This year, the excessive tax put upon the manufacture and export of wild silk has greatly curtailed its shipment. There are three grades of wild silk, which range in price from 120 to 148 taels ($87.96 to $108.48) per picul (133⅓ pounds).

Jute and hemp.—Both are produced in considerable quantities and are extensively manufactured into rope. The present price for jute is 5 taels ($3.66) per picul of 122 pounds. Hemp is quoted at about 13.50 taels ($9.90) per picul of 122 pounds.

The following list comprises the leading articles, with their values, exported during the year 1901:

Article.	Value.	
	Hk. taels.	
Bean cake	7,568,029	$5,547,365
Beans	7,093,186	5,199,305
Millet	1,433,933	1,051,073
Wild silk	920,236	674,533
Oils:		
Bean	3,707,859	2,717,861
Castor	333,801	244,676
Hazel	3,931	2,881
Samshu	123,322	90,395
Jade stone	17,893	13,116
Salt	52,141	38,219
Hemp	16,529	12,116

* Filed in the Bureau of Foreign Commerce, where they may be examined.

Article.	Value.	
	Hk. taels.	
Soda, liquid	50,656	$37,131
Potash	46,704	34,234
Tobacco	21,117	15,479
Indigo, liquid	27,227	19,957
Horse manes and tails	19,963	14,633
Bristles	45,967	33,694
Ginseng	283,957	208,140
Deer horns	94,537	69,296
Sinews (deer, cow, and buffalo)	21,050	15,430
Skins:		
Fox	5,586	4,095
Goat, lamb, and sheep	13,887	10,179
Goat rugs and mats, and goatskin clothing	27,363	20,057
Squirrel skins and tails and squirrel-skin clothing	21,212	15,548
Furs:		
Marten	9,480	6,949
Weazle	6,519	4,778
Dogskin mats and rugs	73,913	54,178
Vermicelli and macaroni	9,304	6,820

Most of these exports show considerable decrease from 1899.

Manchuria is remarkably productive, its exports are continually increasing, and there is opportunity for a great expansion of trade. Manchurians are not as conservative as the inhabitants of other interior districts of China, and, it is thought, are more likely to adopt articles of foreign manufacture. Comparatively, they are much greater travelers, and there is extended intercourse among the peoples of the different provinces. During the summer season thousands are engaged in carrying produce to market by means of boats. In winter, when the rivers are frozen, transportation is effected by carts, usually with seven mules or ponies attached. These carts often travel a distance of 600 miles or more and are from thirty to fifty days on the road to Niuchwang. Often, during the present winter, as many as 2,000 carts a day have arrived at this city. The hardy Manchurians do not hesitate to undertake these arduous journeys, even when the temperature is as low as 40° or 50° below zero.

Not over 10 per cent of the population of Manchuria are true Manchus; 90 per cent are Chinese, most of whom are immigrants from the northern provinces of China, and this accounts for their hardy, aggressive nature. The diversity of their industries and modes of life render it easier for them than for the average Chinaman to enter into relations with foreigners.

If political conditions permit the advent of foreigners to develop commerce and industry throughout Manchuria, there is no doubt that there will be an enormous expansion of trade between this country and the United States.

NATIVE CUSTOMS.

The native customs, heretofore in charge of Chinese officials and kept secret, have this year been made public, and some remarkable conditions have been revealed. The most startling fact is the extent of revenue collected, amounting to 433,192 haikwan taels ($317,530). Heretofore, all of this revenue went into the hands of the Chinese officials and, according to popular reports, only a very small per cent ever reached the Central Government.

The second remarkable discovery is that the steamer traffic in native goods is not, in any sense, a measure of the trade in native products, for the steamers carried only 6,000,000 taels ($4,398,000) worth, against 10,000,000 taels ($7,330,000) by junks.

The foreign-managed customs, which is usually depended upon for information concerning the trade of China and its customs revenue, is only a part of the great whole, and the natives have hidden in their own secret customs a revenue and volume of trade that are enormous.

BANKING.

The increased immigration into Manchuria and the growth of substantial industries are creating a strong demand for money. Reliable Chinese merchants often pay for the use of money 1 per cent and more per Chinese month. The foreign banks and the larger firms pay as high as 7 per cent per annum.

This condition seems to be due to a general expansion of trade and production, and indicates the growing possibilities of Manchuria. The trade of Niuchwang has increased over 500 per cent in ten years. Should the Chinese Government freely allow the export of grains, there will be a new impetus given to trade. Should this be followed by reasonable freight rates to the seaboard, over the railroads, there would be an additional expansion of production and commerce, and coupled with this would come increased immigration, as soon as political conditions are settled and the inhabitants are properly protected from brigands.

In view of these bright prospects, I consider the field a splendid one for banking capital.

The Russo-Chinese Bank and the Yokohama Specie Bank are both doing a good business; also the Hongkong and Shanghai Bank, which has an agent here.

There are eighteen native banks, and their profits for the year are said to have ranged from 10,000 to 200,000 taels ($7,330 to $146,600) each. There are also 100 small money-exchange banks that made profits ranging from 1,000 to 5,000 taels ($733 to $3,665).

RUSSIAN SETTLEMENTS IN MANCHURIA.

There are now three well-established Russian settlements. The largest and most important is the naval station of Port Arthur, which up to the present time has also taken the lead in Russian commerce in this section. The second is the new city of Dalny, 45 miles north of Port Arthur, on the splendid Bay of Talienwan.* This is to be the commercial terminus of the great Siberian Railway, and has been declared open for business. Dalny is provided with great piers, where vessels drawing 30 feet of water can come alongside and transfer cargo to or from cars direct from St. Petersburg.

Following is the record of steam vessels entering Dalny during 1901:

Nationality.	Number.	Tonnage.
English	13	14,991
German	15	15,311
Danish	1	872
Norwegian	7	4,613
Russian	34	20,658
Japanese	276	82,092
Chinese	13	3,640

Dalny possesses the only commercial dry dock in Asia north of Japan.

It has been definitely settled that the Chinese imperial customs, for the collection of tariff on goods going into the interior of Manchuria, beyond the territory leased to Russia, is to be established at Dalny.

All vessels bringing cargo for Port Arthur, or Dalny, or the interior must enter and discharge at Dalny, as Port Arthur is to be reserved exclusively as a naval and military port.

In Dalny, the Government has just established extensive works for manufacturing iron pipe for the water systems of Dalny and Port Arthur, as well as to meet the requirements of the railway. Iron for this purpose is brought from Russia, in the form of pig iron; the coal is imported from Japan.

The third Russian settlement is at Harbin, in the province of Kirin, at the junction of the Vladivostock and the Niuchwang, Dalny, and Port Arthur branches of the Siberian Railway. Harbin has a well-established Russian population of between 4,000 and 5,000.

In all three of these settlements, Russian and Chinese are practically the only languages spoken, and a foreigner unfamiliar with either would have some difficulty in making known his wants.

*See ADVANCE SHEETS No. 1291; CONSULAR REPORTS No. 260.

OPPORTUNITIES FOR YOUNG AMERICANS.

Russian interests on the Pacific are developing rapidly, and their connection with English-speaking people requires, in many instances, persons who can speak and write both the English and Russian languages. Young men with this attainment receive immediate employment at good salaries. The demand for persons familiar with both tongues is sure to continue, and I do not hesitate to recommend to young men who have the opportunity, to study the Russian language. English or American mining engineers and expert mechanics, who also speak Russian, can secure good positions. Russia is just beginning to come into intimate contact with English-speaking people. She is much in need of the knowledge and experience possessed by the latter, and is willing to pay generous salaries to satisfy her wants.

RUSSO-CHINESE BANK; RUSSIAN TRADE IN MANCHURIA.

The Russo-Chinese Bank has established a commercial branch for Manchuria, with a special view to pressing the sale of Russian kerosene, Russian sugar, and other Russian products. Branch banks have also been established at Port Arthur, Dalny, Niuchwang, Moukden, Tieling, K'uan-Cheng-tzu, Kirin, Harbin, Tsi-tsi-har, and Khailar.

Russia's oil and sugar are already finding a market here; she is beginning to sell cotton goods in this part of the world, and the wheat fields of Siberia will soon be furnishing flour for the oriental trade. Her fleet of coasting steamers is already large enough to do an extensive shipping business, and she is liberally subsidizing all lines. Among her fleet of coasting vessels, numbering between twenty and thirty, are the steamers *Manchuria* and *Mongolia*, two of the fastest and finest steamers in the Orient, running from Port Arthur to Japan and Vladivostock.

It is currently reported that Russia is desirous of settling large numbers of immigrants in Manchuria, and that she has asked permission to bring in one body of 10,000.

The richness of the country and the fact that it is underpopulated naturally accounts for the desire on the part of the Russians to press into Manchuria.

In conversing with Russian officials and merchants in regard to the maintenance of the open-door trade policy in Manchuria, whereby all the nations would have equal opportunities for commercial competition, I find that they are universally of the opinion that Russian trade can not flourish here under such conditions.

They affirm that a preferential tariff is essential to the development of Russian trade in this territory.

CABLING AND TELEGRAPHING.

The Russian telegraph line is now open for commercial business from all points in Manchuria to London, St. Petersburg, and New York. The rate to Russian cities is 10 kopecks (5 cents) per word; to London, 59 kopecks (30 cents); and to New York, 98 kopecks (50.4 cents). Formerly, the rates were 2.80 rubles ($1.44) per word to London and 3.30 rubles ($1.70) to New York, over the Danish line.

The time occupied in sending a cablegram to New York and in receiving a reply is usually three days.

SIBERIAN-MANCHURIAN RAILWAY.

The connection between the Siberian and the Manchurian railways has been effected. Both bridges over the River Sungari have been completed, and through trains can now be run from Vladivostock, Port Arthur, or Dalny to St. Petersburg.

The Manchurian branch has not yet been officially opened to traffic, although passengers are carried at second-class rates.

The distance from St. Petersburg to Vladivostock is 6,677 miles, and to Dalny and Port Arthur approximately 7,000 miles. To Niuchwang, it is 150 miles less than to Vladivostock. The time now required to make the journey from Port Arthur to St. Petersburg is somewhat uncertain, varying from sixteen to twenty days. This will be very materially lessened when first-class trains are put in operation.

The Siberian Railroad now has four terminal ports on the Pacific Ocean, viz, Vladivostock, Dalny, Port Arthur, and Niuchwang. Of these, Dalny and Port Arthur are ice free. By connection at Niuchwang, railroad communication may be had with Tientsin and Pekin.

The port of Niuchwang is usually closed by ice from the latter part of November to the latter part of March, but during all other times steamers leave almost daily for Chefoo and Shanghai, once a week for Japan, and at less frequent intervals for Korea.

From Dalny and Port Arthur, steamers leave every few days for Japan and Shanghai, and daily for Chefoo. The fastest of these steamers reaches Japan in thirty-six hours.

The journey from Port Arthur to Irkutsk is at the present time somewhat rough, on account of the second-class accommodations provided. Only mixed trains are run—part passenger and part freight. Eating stations are plentiful along the line. Meals cost from 40 kopecks (20.6 cents) to 2 rubles ($1.03). On this part of the line, passengers must furnish their own bedding, towels, etc.

From Irkutsk to St. Petersburg, there are two trains a week, well provided with all modern comforts for traveling, including sleeping and dining cars and cars with library, bath, barber compartments, etc. These trains make the trip from Irkutsk to St. Petersburg in eight days.

Previous to the opening of the Manchurian Railway, the route through Siberia was from Vladivostock north, by railroad, to Habarovsk, about 280 miles; thence, by steamer, up the Amur and Shilka rivers to Stretensk, the head of navigation on the latter stream, and the terminus of the Siberian Railroad. The distance from Habarovsk to Stretensk is about 1,400 miles.

The trip by river steamer requires from ten days to three weeks. Travelers may take this route during the season of navigation. The expense is about the same as via the more direct route over the Manchurian Railroad to Kaidalovo, where that road connects with the Siberian line.

NOTES FOR TRAVELERS.

Each person should be provided with a passport, properly visaed by a Russian consul.

Money.—Before leaving either Vladivostock, Niuchwang, Dalny, or Port Arthur for the interior, money should be exchanged for ruble notes and, for small change, for silver kopecks. There are good banks at all of these places.

Clothing.—During the winter, furs and arctic overshoes will be found agreeable, and blankets and pillows are comforts at all seasons. During the past winter, the thermometer registered 45° F. below zero at Harbin, where the line to Port Arthur, Dalny, and Niuchwang branches off from the road to Vladivostock.

Language.—Persons unfamiliar with Russian language should have a small dictionary in English and Russian, in order to make their wants known. One is more likely to meet French-speaking Russians than English, although you may travel long distances without meeting a person who can speak any language but Russian.

Baggage.—Only 36 pounds of luggage, in addition to hand valises, will be carried free. The charges for excess baggage are extremely high, being 4 rubles ($2.06) for each 10 pounds from the Pacific to St. Petersburg.

Railway fares.

Description.	From Nagasaki, Japan, to Dalny or Port Arthur.		From Port Arthur or Dalny to Moscow.		From Port Arthur or Dalny to St. Petersburg.	
	Rubles.		*Rubles.*		*Rubles.*	
First class	30.00	$15.45	115.50	$59.48	121.50	$62.57
Second class	20.00	10.30	87.30	44.96	90.90	46.81
Third class	10.00	5.15	56.55	29.12	58.95	30.36

The above rates do not include charges for sleeping car from Irkutsk to Moscow and to St. Petersburg, which are:

Description.	Irkutsk to Moscow.		Irkutsk to St. Petersburg.	
	Rubles.		*Rubles.*	
First class	18.90	$9.73	22.52	$11.60
Second class	11.34	5.84	14.32	7.37

The cost of a first-class ticket from Japan to London will vary from 230 to 280 rubles ($118.45 to $144.20), according to the route taken. The second-class fare will be 50 rubles ($25.75) less. The trip will require about twenty-five days.

From China to New York over the Siberian Railroad, the cost of travel will be about the same as across the Pacific by steamer and the United States by rail, and when the Siberian road puts on first-class trains the time will be about the same.

JAPANESE COMMERCIAL EXHIBIT AT NIUCHWANG.

In connection with this report, I wish to call attention to a method that Japan is following in the introduction of Japanese goods into new trading centers. The Government purchases a number of samples of such goods as are recommended by the consul and forwards them to him. These samples are tastefully displayed in some Japanese store in the heart of the Chinese city, where Chinese merchants are invited to inspect them, and orders are taken. The exhibit is under the direction of the consul, while the practical side is attended to by the merchant. This scheme has proven very successful in extending and developing new trade. An effort was first made to maintain the exhibit at the Japanese consulate, but it was found that the Chinese merchants did not feel free to go there; hence the more satisfactory plan, above outlined, was adopted. This scheme was inaugurated at Niuchwang, and its success has become so marked that it is now being extended to many other places in China.

JAPANESE MERCHANT STUDENTS.

Another successful plan to extend Japanese trade and commerce in China is the following:

The Government selects a number of intelligent young men and sends them into different parts of China for the purpose of studying mercantile conditions. These young men are attached to the Japanese consulate and are under control of the consul, who selects the establishments where they shall be trained. Four of these young men are located in Niuchwang, two of them making a special study of marine food and products, and the other two of general commerce. In this particular case, these four young men are employed

in the store where the Japanese museum is located. They are enlisted in the service for three years, and each receives $30 Mexican ($14.43) a month. At the end of their enlistment, they may apply for continuance, or are at liberty to engage in business on their own account.

This scheme and the commercial museums in charge of Japanese merchants are proving valuable aids to the extension of Japan's trade throughout China. Energy and patriotism and close attention to business details and the requirements of the people strongly characterize the Japanese in their trade with China.

ADVERTISING.

Much useless and wasteful advertising is being done in China by United States merchants and manufacturers. In the first place, it is almost impossible to sell to the Chinese without their seeing samples; written and illustrated descriptions have little effect upon the Chinese merchant. Imagination plays so large a part in Chinese literature and art that the merchant is by nature suspicious, and descriptions and illustrations, however accurate, fail to appeal to him. Samples, therefore, are all-important in introducing new goods throughout China. Almost all other kinds of advertising are absolutely useless

OBTAINING TRADE DATA.

Before closing this report, I desire to call attention to the fact that of the trade and industries of China very little is known to the outside world; there seems to be no organized method of compiling information as to the country. The dominating characteristic of the mercantile, as well as of the official and political, life of China is secrecy; and when to this is added the fact that each locality has its own independent methods of production, manufacture, and trade, the general ignorance in regard to China and its possibilities is readily explained. Temporary commissions to investigate the peculiar conditions throw little or no light upon the subject.

The interest of the United States in China has grown to such proportions, and the future relations of the two countries bid fair to become of so much importance, that a more perfect method of securing and compiling industrial and commercial knowledge of the Empire would seem absolutely necessary.

There are no Government reports or other means for providing information of this nature. The revelations made at this port by the publication of the native customs are insignificant, compared with the great internal production and trade of which the world knows so little.

AMERICAN EXHIBITS.

Regarding the subject of exhibits of American products in the Orient, I am of the opinion that the American and European idea of making elaborate and artistic displays in large rooms open to the public, upon which considerable money is expended, will not bring the favorable results expected.

A careful study should be made of the articles used by the Chinese, and suitable samples, with prices and directions for ordering, should be placed in the store of a native merchant. The merchant should be paid for giving attention to the exhibit and, in addition, should receive a commission on all sales. The price of the goods should be fixed also.

My observation leads me to the opinion that the introduction of foreign goods can best be accomplished with the aid of the Chinese themselves. As merchants, the Chinese are probably the most skilled of all races, and the only successful way of developing trade here is to insure them a share in it. A show or display in which the Chinese have no direct monetary interest will prove valueless.

The process of introducing many foreign articles into China will necessarily be slow, and large exhibits in a single center will not show such results as would follow in other countries. Small well-distributed exhibits with a partnership interest for the Chinese merchant will, on the other hand, yield substantial returns.

HENRY B. MILLER,
Consul.

NIUCHWANG, *March 4, 1902.*

NIUCHWANG NATIVE CUSTOMS RETURNS.

Gross and net value of the trade of Niuchwang, 1900 to 1901.

Description.	1900.			
	Net value.		Gross value.	
Foreign goods.	*Hk. taels.*		*Hk. taels.*	
Imported from Chinese ports	4,499	$3,242		
Reexports to Chinese ports, to Kyao-chau, Tientsin, Shantung ports, Chinchow, and Shanhaikwan	18,348	13,224		
Native produce.				
Imported from Kyao-chau, Chinchow, and Shanhaikwan			193,608	$139,533
Reexported to Chinese ports	47,528	34,253		
Net total native imports	146,080	105,280		
Native produce of local origin exported to Chinese ports	775,165	558,661		
Gross value of the trade of the ports			993,272	715,851
Net value of the trade of the ports—*i. e.*, foreign and native imports, less reexports	907,396	653,960		

Gross and net value of the trade of Niuchwang, 1900 to 1901—Continued.

Description.	1901.			
	Net value.		Gross value.	
Foreign goods.	*Hk. taels.*		*Hk. taels.*	
Imported from Chinese ports	51,243	$37,561		
Reexports to Chinese ports, to Kyao-chau, Tientsin, Shantung ports, Chinchow, and Shanhaikwan	75,168	55,098		
Native produce.				
Imported from Kyao-chau, Chinchow, and Shanhaikwan			10,201,780	$7,477,905
Reexported to Chinese ports	125,542	92,022		
Net total native imports	10,106,238	7,407,872		
Native produce of local origin exported to Chinese ports	6,156,991	4,513,074		
Gross value of the trade of the ports			16,440,014	12,050,530
Net value of the trade of the ports—*i. e.*, foreign and native imports, less reexports	16,239,304	11,963,410		

Trade in foreign goods (imports).

Description.	Quantity.	Value.	
		Hk. taels.	
Cotton goods:			
Shirtings, plain—			
Gray ....Pieces...	72	252	$185
White ....do....	190	608	445
Dyed ....do....	47	212	155
T cloth—			
32 inches ....do....	400	800	586
36 inches ....do....	186	372	273
Drills, American ....do....	117	421	309
Sheetings, American ....do....	3,698	13,313	9,858
Cotton prints, plain ....do....	143	600	440
Cotton Italians, plain and figured ....do....	377	3,393	2,487
Printed cotton twills ....do....	6	21	15
Velvets ....do....	40	280	205
Towels ....dozen...	35	10	7
Cotton goods, unclassed ....pieces...	42	105	77
Cotton yarn ....piculs...	44	1,070	784
Cotton thread ....do....	12	862	632
Woolen goods:			
Camlets ....pieces...	37	740	542
Lastings, plain and figured ....do....	28	392	287
Long ells ....do....	15	113	83
Blankets ....pairs...	50	100	73
Metal:			
Iron bar ....piculs...	29	108	79
Iron, pig ....do....	430	602	441
Old iron—			
Horseshoes ....do....	7	21	15
Scraps ....do....	1,666	1,456	1,067
Unclassed ....do....	856	1,041	763
Iron nails ....do....	145	903	662
Ironware ....do....	77	757	554
Tin, in slabs ....do....	11	420	308
Steel bar ....do....	13	91	67
Copper slabs ....do....	3	90	66
Copper sheets ....do....	14	428	313

Trade in foreign goods (imports)—Continued.

Description.	Quantity.	Value.	
		Hk. taels.	
Metal—Continued.			
Yellow-metal sheets....piculs...	5	150	$110
White metal and German silver....do....	4	200	147
Metal, unclassed....do....	3	11	8
Sundries:			
Biche-de-mar, black....do....	4	137	100
Dyes, aniline....value....		481	353
Flour, American....piculs...	745	2,677	1,962
Matches....gross...	3,200	768	563
Needles....mille...	1,960	289	212
Oil, kerosene (American)....gallons...	27,670	6,736	4,937
Oil paints....do....	12	115	84
Rattans....piculs...	21	198	145
Sugar—			
Brown....do....	1,382	6,217	4,557
White....do....	159	1,049	769
Candy....do....	4	30	22
Seaweed, Russian....do....	20	30	22
Soap bar....value....		94	69
Wine....do....		3,200	2,346
All other....do....		180	132
Total....		51,243	37,567

	Haikwan taels.	
Total imports from Chinese ports	10,231,780	=$7,499,895
Reexports to Chinese ports	125,542	= 92,022
Total exports, including reexports	6,282,533	= 4,605,097
Total exports to Chinese ports	6,156,991	= 4,513,074
Total reexports to Chinese ports	185,542	= 136,002

REVENUE.

Dues and duties and likin collected during the year, compared with the period from August 12 to December 31 of previous year.

Description.	Aug. 12 to Dec. 31, 1900.		1901.	
	Hk. taels.		*Hk. taels.*	
Import duty	3,196	$2,303	*119,281	$87,433
Export duty	32,417	23,363	118,571	86,913
Coast-trade duty	3,990	2,876	49,974	36,621
Tonnage dues	5,589	4,028	25,490	18,684
Inward likin	1,510	1,008	63,381	46,458
Outward likin	2,597	1,872	28,775	21,092
Opium tax†			27,717	20,317
Total	49,300	35,450	433,192	317,518

*Including salt tax, 17,542 haikwan taels.

†Including Lo-di-Chuan, and likin on 736 piculs of native opium, 367,850 haikwan taels ($328,708), brought down from the interior and reported to the native customs for payment of inland opium taxes.

EXTRACTS FROM NIUCHWANG TRADE REPORT FOR THE YEAR 1901.

[By the Commissioner of Customs.]

Local.—The river opened on March 8, an early opening following upon a short, mild winter. The uncertainty of the political outlook, with the peace negotiations unconcluded in Pekin, and with brigandage, real and imaginary, still causing unrest in Manchuria, tended to retard imports. These, however, were temporary difficulties. More serious were the piracy and organized extortion on the river, which were preventing the bean boats from coming down. The crops of the previous two years had been very full. The troubles of 1900 had precluded the produce from coming here for shipment. It lay in vast quantities at the marts on the Upper Liao, and if trade were to flourish again in Niuchwang, it was essential that the lawlessness prevailing on the river should be suppressed and the boats protected from piracy on their passage down stream and on their return journey, carrying the profits of the trade. The Russian authorities realized the importance of the problem and lost no time in grappling with it. Communications were maintained with fair regularity during the summer and autumn. With the signing of the peace protocol, trade seemed suddenly to recover vitality. Imports began to pour in in great quantities, and an unusually busy autumn closed up the working portion of a year which, though in value of trade and revenue receipts some way behind the record year 1899, was still a very good one, and one which, it is satisfactory to note, brought large profits to local merchants.

It may be deduced that Manchuria has recovered from its troubles, is as quiet as ever it was, and has resumed its temporarily interrupted work of development. The railways aided to no small extent in rehabilitating trade. In the spring of the year, the Eastern Chinese Railway line from Port Arthur was complete as far north as Kai-Yuan. Work upon all the sections was pushed with energy during the summer and autumn, until in the early days of November it was announced that railway connection existed between the Transbaikal territory, Vladivostock, and Port Arthur. The great Trans-Siberian-Manchurian line, the first sod of which had been turned at Vladivostock on May 19, 1891, stood consummated, and this part of the Far East was connected by rail, across the vast width of the Asiatic continent, with the great capitals of Europe. As regards the local trade, however, the chief point is that the railway came to the aid of the river route by bringing down some of the vast stores of the produce in the interior and conveyed inland considerable quantities of imports. During the summer, when the river was low, the roads bad, and the draft animals required on the farms, the Chinese used the railway freely. The railway organization was of course not complete, and sufficient rolling stock was not available to meet requirements. As winter came on, roads improved and animals were set free for road work, the cost of cart hire came down, and carts were largely reverted to. The railway being in its infancy and not pretending to be able to meet the demand for freight, goods carried by carts were more certain to arrive on time. This is an advantage that a year or two should dissipate, and one may expect that the carts will then find their real work—the feeding of the railway depots. The Shanhaikwan Railway, which had suffered somewhat during the Boxer troubles, was repaired by May. Merchandise was mostly carried, and a daily train ran between Shanhaikwan and this port. When all has been said, however, the river remains the chief route for produce. No one who traverses the great and wealthy plain of central Lower Manchuria can think that any single or even double line of railway can carry away its vast productions and bring in its large requirements, as well as deal with the passenger traffic, foreign and native, which is already a prominent feature of the Russian line. There is every reason to believe that the railways will do a large and profitable trade. But their presence and the capital their cost of construction has

brought into the country have stimulated the already large production, and when the railways have carried all that their capacities permit, there will still remain ample freight for the river boats.

The gross sea-borne trade of Niuchwang in foreign and Chinese vessels in 1901 was worth 158,805,694 haikwan taels ($116,404,574). Junks carry but little foreign goods, but they bring a larger value of Chinese merchandise than does the whole fine fleet of steamers trading to this port. The estimate made in the trade report for 1899—that the junk trade of that year was worth not far short of 20,000,000 taels ($14,660,000)—was thus probably not far from the mark, though it has been criticised as too large by a high authority upon Manchuria. The prices of articles of food in the local market rose to two or three times what they were three or four years ago, and cost of living for both foreigners and Chinese is considerably greater than it used to be. As a set-off, most classes of Chinese probably earn higher wages, particularly carpenters, joiners, bricklayers, and masons. A local production of great value, though only a small portion of it appears in the junk returns (it being consumed entirely inland in Manchuria, and its exportation being forbidden), is salt. The output from the pans in the neighborhood of this port during 1901 was estimated at 200,000 tan (1 tan=600 catties, or about 800 pounds), representing a value in the Yingkow market of about 500,000 taels ($365,000). Salt is not a Government monopoly in Manchuria as in China proper, but its manufacture is open to all who can afford to buy a pan. The comparisons throughout this report are made generally with 1899, 1900 having been a dead year.

Foreign trade.—The gross value of imports coming directly from foreign countries was 4,293,737 haikwan taels ($3,147,300), or 985,448 haikwan taels ($722,333) less than in 1899, but three times the figures in 1898. Japan and Hongkong account for almost the whole amount. The principal wares coming in direct steamers were Japanese cotton goods and yarn, Indian yarn—a very large item—Japanese coal, American flour, Japanese matches, and sugar prepared in Hongkong. The swelling of the foreign population was well evidenced by the importation of beer and porter to the value of 34,549 haikwan taels ($25,314). Similarly, the value of the cigarettes arriving here reached the high figure of 97,504 haikwan taels ($71,470), against 5,802 haikwan taels ($418) in 1899. Chinese peddlers now hawk cigarettes for sale at every station on the railways, and there are signs that the Chinese themselves are taking not unkindly to the Russian habit of cigarette smoking. The importation of Japanese coal increased enormously—from 12,350 tons to 54,357 tons; American flour arrived to the extent of 50,693 piculs (6,759,066 pounds), against 29,343 piculs (3,912,400 pounds) in 1899; and Japanese matches reached the large total of 828,759 gross, the 1899 figures being only 313,750 gross. European matches, on the other hand, show a decline.

Coast trade.—The Manchurian produce going to native ports was valued at 11,439,134 haikwan taels ($8,384,885), a total practically equal to the 1899 figures. Bean products again form the bulk of these exports.

Manchurian tobacco has a deservedly high reputation in China, possessing the quality of strength in a higher degree than any China-grown tobacco.

Manchuria produces enormous quantities of grain of various sorts, far more than it can consume. When improved communications enable these food stuffs to be brought down to the ports, these provinces should be a granary, not only for the rest of China, but also, could the restrictions on export be removed, for other countries.

Potash is found in several districts in the eastern part of Lower Manchuria. The product is purified and worked into bricks. It is used by native dyers and also for washing, large quantities being sent to Shantung and Chili for these purposes.

The foreign goods arriving coastwise were valued at 12,854,552 haikwan taels ($9,432,386)—22 per cent less than the 1899 figures. American drills almost held their

own in comparison with 1899, 546,123 pieces having been imported, against 584,877 pieces. Of American jeans and sheetings, 52,473 pieces and 979,559 pieces came in, against 29,630 and 1,101,885 pieces, respectively, in 1899. Practically, the whole of this great trade comes coastwise. The value of the three articles during the year—including the small direct arrivals—was 5,653,661 haikwan taels ($4,144,133), or about 33 per cent of the total foreign importations into this port. To grasp fully how the trade in American piece goods has grown in Manchuria, the comparative ten-year table of imports should be referred to, when it will appear how rapid the growth has been and how indispensable the Manchurians now find these products. After the great American staples, we may note the prominence of Indian cotton yarn. Indian yarn has apparently won the market, the English and Japanese varieties being in small favor. Woolen goods are never a large importation here, the Chinese finding wadded-cotton garments cheaper and more effective against the cold. Iron importations were found unprofitable. The iron from the many miles of railway line torn up and looted, and from the locomotives, etc., wrecked, was for sale, reducing the demand for the legitimate article. Among sundries may be noted the large importation of American kerosene oil—3,172,000 gallons, against 2,282,060 gallons in 1899. Turning to native articles, the great item on the list is native cloth and nankeen, of which the large importation is recorded of 137,710 piculs (18,361,333 pounds), valued at over 6,000,000 taels ($4,398,000). When these figures are added to those of the same commodity arriving in steamers, we realize what a considerable part native cotton cloth plays in clothing the natives of Manchuria. Here, in fact, lies the great competitor which has to be faced by the cotton manufacturers in America, Great Britain, and Japan. In the words of the Blackburn Commission, "There is one form of competition which is very apt to be overlooked, or at least underrated, and which, from the conditions under which it is carried on, acts as a greater deterrent to the more general use of Lancashire cloths than all outside competition put together. We refer to the universal production of native handmade goods. The sooner we drop the fond illusion that we, and other competing countries, clothe China's millions, and grasp the fact that as regards the trade in foreign piece goods every province in the country is an undeveloped market, the more hope shall we have for the future of our trade in the Far East. The fact is, we do not clothe China's millions; they clothe themselves, the purchasing power of the individual deciding whether he does or does not wear garments made from foreign cottons." The Chinese in Manchuria, owing to their comparative prosperity, perhaps use proportionately more foreign piece goods than they do in China proper. But still, the above words hold true here; the large importations of native cottons confirm them, and it is to be remembered that there is also a large cotton-making industry in these provinces.

The values of imports and exports were as follows:

Description.	Value.	
Imports.		
Net imports, market value:	*Hk. taels.*	
Foreign	17,056,803	$12,502,636
Native	6,463,176	4,737,508
Total imports	23,519,989	17,240,144
Deduct duties and opium likin pais at Niuchwang	220,326	161,499
Net imports, minus duty	23,299,663	17,078,645
Deduct general likin collected during 1901	136,168	99,811
Net imports, minus duty and likin	23,163,495	16,978,834
Deduct 7 per cent for importers' profit, etc	1,621,442	1,188,517
Total imports, value at moment of landing	21,542,053	15,790,317

Description.	Value.	
Exports.	*Hk. taels.*	
Original exports, market value	18,742,220	$13,738,047
Add duty and opium inland dues paid at Niuchwang	511,821	375,165
Exports plus duty	19,254,041	14,113,212
Add general likin collected during 1901	67,408	49,410
Exports plus duty and likin	19,321,449	14,162,622
Add 8 per cent on market value for exporters' profit	1,499,378	1,099,044
Total exports, value at moment of shipment	20,820,827	15,261,666

TRADE OF NORFOLK ISLAND.

Consul O. H. Baker transmits from Sydney, New South Wales, March 4, 1902, the following report from Mr. Isaac Robinson, consular agent at Norfolk Island, as to conditions in his district:

Imports and exports of Norfolk Island during the year 1901 were:

Country.	Imports.		Exports.	
New South Wales	£4,467	$21,739	£1,217	$5,923
New Zealand	827	4,025	44	214
New Caledonia and South Sea Islands			398	1,937
Total	5,294	25,764	1,659	8,074

Whaling, the ruling industry of the island, was very successful during the year under review. The whale taken is the humpback; the season commences in July and ends in October. Eighteen whales were taken, which made about 70 tons of marketable oil, the great bulk of which was sold on the spot for £12 10s. ($60.83) per ton free on board.

The trade of the island is in the hands of three or four storekeepers, who do most of their business by barter, there being very little money in circulation.

CHANGES IN AUSTRALIAN TARIFF.

Consul-General J. P. Bray sends from Melbourne, March 24, 1902, the following list of recent changes in the Australian tariff:*

Article.	Previous proposal.	New duty.
Division XIII.—Paper and stationery.		
Fashion plates.....per pound...	3d. (6 cents).....	Free.
Writing paper, cut less than 16 by 13 inches, and paper (toilet) in rolls or packets, per pound.	2d. (4 cents).....	15 per cent.
Cartridge and blotting.....per cwt...	6s. ($1.46).....	Do.

*See ADVANCE SHEETS No. 1201; CONSULAR REPORTS No. 256.

Article.	Previous proposal.	New duty.
Division XIII.—Paper, etc.—Continued.		
Browns, sugar (gray-blue and other tints), and toilet bag paper, per cwt.	6s. ($1.46)	3s. (73 cents).
Millboard, gray board, leather board, wood board.	15 per cent ad valorem	10 per cent ad valorem.
Paper patterns	25 per cent ad valorem	Free.
Division XIV.—Vehicles.		
Cycle parts n. e. i., including steel bar for the manufacture of rims.	15 per cent	10 per cent.
Vehicles:		
Barouches, broughams, landaus, victorias, mail phætons, drags, and similar vehicles, each.	£12 ($58.40) and 15 per cent ad valorem.	25 per cent.
Express wagons, wagons for carrying goods, single or double seated wagons, four-wheeled buggies—mounted on springs, or thorough-braces and without tops.	£5 ($24.33) and 15 per cent ad valorem.	Do.
Hansom cabs, also single or double seated wagons, wagonettes, and four-wheeled buggies, with tops, each.	£6 ($29.19) and 15 per cent ad valorem.	Do.
Omnibuses and coaches for carrying mails or passengers, each.	£9 ($43.79) and 15 per cent ad valorem.	Do.
Tilburys, dogcarts, gigs, Boston chaises, sulkies, and other two-wheeled vehicles—on springs or thorough-braces, each.	£3 ($14.59) and 15 per cent ad valorem.	Do.
All parts thereof n. e. i.	do	Do.
Division XV.—Musical instruments.		
Piano parts n. e. i.	15 per cent ad valorem	20 per cent.
Pianos:		
Grand and semigrand, each	£12 ($58.40) and 15 per cent ad valorem.	20 per cent ad valorem.
Upright, do	£4 ($19.46) and 15 per cent ad valorem.	20 per cent.
Pianos working mechanically or otherwise.		Do.
Military bands and orchestral musical instruments and bagpipes.	15 per cent	Free.
Division XVI.—Miscellaneous.		
Boats, launches, and yachts imported in any vessel, including all fittings.	20 per cent ad valorem	15 per cent ad valorem.
Explosives:		
Ammunition and cartridges n. e. i.	do	Free.
Fuse, per coil of 24 feet or less, and in proportion for any greater quantity, per coil.	1d. (2 cents)	Do.
Powder, sporting, per pound	4d. (8 cents)	Do.
N. e. i., do	1d. (2 cents)	Do.
Twine and yarn, viz, reaper and binder, per cwt.	8s. ($1.94)	5s. ($1.21
Dental rubber, amalgam, gold filling in pellets or cylinders, surgical pessaries, glass rectum and vaginal tubes, india-rubber drainage tubing, ambulance lantern slides.		Free.
Fire-brigade appliances, viz, fire escapes and fire ladders, ladder carriages, watch towers.		Do.

IMPORTS OF THE TRANSVAAL.

Acting Consul W. D. Gordon sends from Pretoria, March 3, 1902, copy of the Transvaal customs returns of imports for the year ended December 31, 1901.

Most of the goods noted as coming from oversea countries, says Mr. Gordon, were stored at coast ports prior to the outbreak of hostilities, and are now coming forward.

The principal imports, with countries of origin, were:

Imports into Transvaal.

Article.	Quantity.	Value.
Acetic acid and vinegar.....gallons...	12,065	$11,938
Ale and beer.....do.....	55,126	59,570
Ammunition.....	.....	2,924
Animals, live.....number...	45,602	83,606
Drugs and chemicals.....pounds...	213,625	396,702
Apparel and slops.....	.....	1,580,327
Biscuits.....pounds...	1,106,839	160,575
Books and stationery.....	.....	175,235
Boots and shoes.....	.....	1,119,816
Butter.....pounds...	1,594,515	538,162
Butterine, margarin, and ghee.....do.....	337,705	46,227
Candles.....do.....	2,401,485	237,612
Cheese.....do.....	589,168	104,084
Chocolate and cocoa.....do.....	127,380	76,029
Cigars.....number...	2,449,605	109,311
Leather, and manufactures of.....	.....	233,008
Machinery of all kinds.....	.....	943,906
Matches.....gross...	70,378	33,258
Meal, wheat and other.....pounds...	4,321,357	143,936
Meats:		
Preserved, etc.....do.....	3,290,457	641,731
Fresh, and game.....do.....	1,926,213	192,720
Milk, preserved.....do.....	4,411,731	442,744
Oil:		
Mineral.....gallons...	404,345	88,346
Other than mineral.....do.....	187,740	95,544
Pickles, sauces, and chutney.....pounds...	313,030	68,788
Rice.....do.....	2,777,232	90,035
Soap.....do.....	3,008,023	200,398
Spirits.....gallons...	119,467	361,863
Sugar.....pounds...	10,018,922	418,305
Tea.....do.....	596,733	159,052
Tobacco:		
Manufactured.....do.....	71,193	43,341
Unmanufactured.....do.....	412,983	53,536
Tobacconists' ware.....	.....	88,556
Toys and sporting goods.....	.....	56,378
Vegetables:		
Fresh.....pounds...	5,513,917	178,114
Preserved.....do.....	760,624	72,355
Bicycles and accessories.....	.....	145,567
Wines.....gallons...	47,465	164,196
Woolen manufactures.....	.....	370,136
Wire, electric cable and other.....	.....	32,523
Goods not enumerated.....	.....	8,040,377
Total.....	.....	17,861,831

NOTE.—These returns do not include military or Government stores.

Imports by countries of origin.

Natal	$6,359,756
Cape Colony	2,834,853
Orange River Colony	15,636
Delagoa Bay	600,205
Europe	7,548,073
Other countries	473,068

TRADE OF PERU IN 1901.

Minister I. B. Dudley transmits from Lima, April 17, 1902, copies of an official statement showing the value of importations during the calendar year 1901, through Callao, the principal port of Peru. Imports in 1901, according to countries of origin, were:

Country.	Value.	
	*Soles.**	
England	6,897,607	$3,359,132
United States	4,069,056	1,981,630
Germany	3,245,267	1,580,445
France	1,426,932	694,916
Italy	959,905	467,474
Belgium	871,481	424,411
Australia	698,414	340,128
China	694,696	338,317
Chile	439,173	213,877
Spain	188,149	89,629
Central America	92,703	45,146
India	46,762	22,773
Ecuador	31,038	15,116
Other countries	86,671	42,209
Total	19,747,854	9,615,203

*1 Peruvian sol=48.7 cents.

The following table shows the values of the classes of imports in 1901:

Article.	Value.	
	*Soles.**	
Cotton	2,987,211	$1,454,772
Wool	1,568,282	763,753
Linen	188,409	91,755
Silk	448,440	218,390
Furniture	1,265,819	616,454
Fancy articles	8,867,621	4,221,132
Provisions and groceries	3,231,392	1,573,688
Wines and liquors	321,695	153,665
Drugs and chemical products	804,661	391,870
Specialties	64,327	31,327

*1 Peruvian sol=48.7 cents.

EXHIBIT OF ALCOHOL APPLIANCES AT LIMA.

Vice-Consul J. C. Cree, of Callao, under date of April 16, 1902, transmits circular and programme relative to the international exposition of the appliances of alcohol, to be held in Lima, Peru, from November 1 to 30, 1902. The exposition will be divided as follows:

(1) Motive power (comprising stationery motors for general use, special motors for agriculture, marine motors, motor cars and locomotives, locomotors, and carburizers); (2) heating apparatus (heaters for general use, railway cars, coaches, calefactors, stoves, and other apparatus); (3) lighting (lamps or apparatus of the incandescent system for public use operated by means of methylated or neutralized alcohol; the same by means of carburized alcohol; the same of the usual bright-flame system by means of carburized alcohol; lamps or apparatus of the incandescent system for domestic use by means of neutralized or methylated alcohol, or by means of carburized alcohol; the same by the usual bright-flame system); (4) method of neutralizing or methylating the alcohol, and process of carburizing the alcohol; (5) utensils and apparatus not comprised in the foregoing classifications, which make use of neutralized, methylated, carburized, or solidified alcohol.

Prizes will consist of gold, silver, and copper medals, and awards of honorable mention. Space for exhibits will be given free; the executive committee will, when requested, attend to the installation of objects free of expense, and the necessary lighting and water will be provided gratis. In order to insure the admission of the exhibits, obtain concessions, reduction in freight rates, etc., communications containing (1) the name and address of the exhibitor, (2) the nature and use of the objects to be exhibited, (3) the division and section to which these correspond, and (4) the superficial area required (in meters) should be addressed to the secretary of the executive committee. Exhibits should be entered, at the latest, during the month of September, 1902. Practical experiments with motors, apparatus, etc., will be made during October, 1902, notice being given to the exhibitor or his representative three days previously of the day and hour. Bills of lading should be made out to the order of the executive committee, marked as follows: $\frac{\text{E. de A.}}{\text{Callao.}}$

GERMAN TRADE METHODS IN CHILE.

Consul C. C. Greene writes from Antofagasta, March 9, 1902, in regard to German methods of securing trade in Peru, Chile, and Bolivia. He says:

Thirty years ago, the trade coming to the Pacific ports was monopolized by the British and a few American houses. The Germans were represented only by jobbers and shopkeepers in the coast towns.

The Germans, appreciating the importance of this trade, made well-conceived plans to gain it. They carefully trained a number of able young men. When these were versed in commercial affairs and in the language of the people among whom they were to live, considerable shipments of goods were made to the British and American houses, and the young men found places as clerks and were given special charge of these consignments. They remained there till they acquired a complete knowledge of the coast trade; then they were provided with ample funds and stocks and opened German houses, with brilliant success. In many branches, they now have a monopoly, and the British and American houses no longer attempt competition.

The Germans not only established houses in the larger ports, but also agencies in the smaller ports and interior towns. Antofagasta is the port of entry and shipment for a large section of Bolivia. In former years, the trade of Bolivia was controlled by the wealthy British houses in Tacna, which had agencies in Bolivia. The American houses in Valparaiso also had a good deal of business in bark, etc. To-day, the Germans have it nearly all in their own hands. In the south of Chile, German banks not only do most of the German business, but a good share of the local trade.

The fine steamers of the Kosmos Company have extended their service to Central America and San Francisco. From this last port, they fetch barley, flour, etc., and even lumber of certain qualities, to ports as far south as Callao and Iquique.

We must follow German methods in foreign trade.

Consuls, in their own special sphere, have done much, but United States exporters must not rely too much on official representatives in extending commerce. The Germans have made progress, not through their consular service, but through private enterprise.

The occasional visits of commercial travelers can do some good, but can never develop important trade.

LOBSTER FISHING IN CHILE.

The Island of Juan Fernandez, lying 600 miles west of Valparaiso (made famous by the story of Robinson Crusoe), promises soon to develop industrial interests.

The island belongs to Chile, and the Government is now arranging to make it a part of one of the provinces and establish a local civil government. The island is about 15 miles long and 8 miles in width. There is a good harbor on one side, where large ships can anchor with safety.

A large canning factory has been established on Juan Fernandez and the fishing industries are attracting the attention of capitalists. There are quantities of lobsters, crabs, and excellent food fishes in the waters. The lobsters are large, of excellent flavor, and especially suited for canning. They are easily caught, the supply seems inexhaustible, and the cost of securing them is nominal. There are also large numbers of fur seals on Fernandez and other islands near by, the taking of which might be profitably included in the lobster and fish business. The laws of Chile permit the killing of seals from March 1 to November 1. There is a ready market for the seal skins in this port, whence they are shipped to Europe.

There is plenty of fresh water on the island; land can be acquired by settlers without cost; fruit and vegetables grow wild and are easily cultivated, which makes the cost of living comparatively low. The company now engaged in business is enlarging its plant and increasing its output. From investigations I have made, I am of the opinion that an American company could engage in this trade with reasonable assurance of securing large profits on the investment.

R. E. MANSFIELD,

VALPARAISO, *March 22, 1902.* *Consul.*

CURRENCY OF CHILE.

The following information concerning the coin currency now in circulation in Chile is gleaned from a recent report made by the consul-general of Mexico to Chile, who is also a banker:

There are three classes of gold coins, denominated "condor," "doubloon," and "escudo," with an alloy of eleven-twelfths fine. Their values are, respectively: Condor, 20 pesos; doubloon, 10 pesos; and the escudo, 5 pesos.

The condor weighs 11.98207 grams.

The doubloon weighs 5.99103 grams.

The escudo weighs 2.99551 grams.

There are four classes of silver coins—one of 100 cents, denominated "peso," and the others of 5, 10, and 20 cents, with an alloy of 0.835 fine.

The peso, or silver dollar, has 20 grams; the 20-cent piece, 4 grams; the 10-cent piece, 2 grams; and the 5-cent piece, 1 gram.

The copper and nickel coins of the country are divided into four classes—2½ cents, 2 cents, 1 cent, and 0½ cent.

The monetary unit of Chile is the twentieth part of a condor, the tenth part of a doubloon, or the fifth of an escudo, which is denominated "peso." No one is compelled to accept or receive more than 50 pesos in silver coin.

The "pound sterling," coined in England and Australia, has a legal value in Chile of 13⅓ pesos.

R. E. MANSFIELD,

VALPARAISO, *March 22, 1902.* *Consul.*

GOLD MINING IN URUGUAY.

Statistics have been forwarded to this office by the Department of the Interior of Uruguay in relation to the mining of gold for the past three years. The work has been carried on almost wholly by a French company, and the results are:

The mines in Rivera produced 5,119 tons in 1899, yielding in gold 61.336 kilograms (139.2 pounds). In 1900, 7,345 tons of mineral quartz were worked, producing 71.234 kilograms (157.04 pounds) of gold.

In 1901, 6,183 tons were worked, yielding 71.946 kilograms (158.6 pounds) of gold. The cyanide process is now adopted, and better results are obtained than before. The mines are all small—mostly surface work—and assays made from twelve workings range from 6.75 grams (104.15 grains) to 30.79 grams (475 grains) per ton. During 1901, 25 new applications for mining privileges were filed, all in other departments (Cerro Largo, Minas, Maldonado, Canelones, and Florida). Lack of water is complained of. The Government gets a percentage on all gold produced.

The concessionnaires hope in time to strike a quartz of marvelous richness. French appliances are used exclusively. All French companies in South America deal only with France.

ALBERT W. SWALM,

MONTEVIDEO, *February 26, 1902.* *Consul.*

OPENING FOR RAILWAY MATERIAL AND SUGAR MACHINERY.

The representatives of a syndicate of Dutch capitalists, Messrs. Von der Ben and F. W. Bolk, of Stork frères, Hengelo, Holland, came here recently to reorganize the large sugar plants in Rio and Sergipe. I called on the gentlemen to recommend the installation of American machinery for these plants. They will adopt it, if they receive favorable offers from American houses.

They want, among other things, electrical sugar machines of every kind, including cane crushers—not cutters—and dynamos and motors, variously described as of 220 kilowatts, 330 effective horsepower, 220 and 440 volts—in short, everything requisite for the installation of large sugar refineries.

The same gentlemen are also interested in sugar refining in Java, and they are desirous of securing the sole agency for American rails for narrow-gauge roads of from 75 to 100 centimeters (29.5 to

39.37 inches) in width, and for locomotives and other rolling stock to be used in the transportation of sugar over such roads.

American houses desiring to enter into negotiations for supplying the machinery required should address Stork frères, Hengelo, Holland.

EUGENE SEEGER,
Consul-General.

RIO DE JANERIO, *March 19, 1902.*

WATERWORKS, DRAINAGE, AND PLUMBING FOR BAHIA.

The Brazilian coast city of Bahia has about 200,000 inhabitants, who live in 17,000 houses.

The water supply available for this population is entirely inadequate. A local company, called "Queimado," has had the contract of furnishing the city with water ever since 1852. It conducts the water from neighboring mountains, and altogether has spent about $1,500,000 for waterworks, a pipe system, fountains, fire plugs, etc. Long negotiations between the Queimado Company and the city of Bahia for the purpose of adequately increasing the waterworks came to a conclusion three days ago. The Queimado monopoly is renewed for forty-five years and the company is awarded some valuable franchises and privileges. On the expiration of the contract, the city has the option to buy the company's plants, at the valuation of experts. The use of water is made obligatory for each dwelling, and the municipality of Bahia regulates the price—$3 a month for the average dwelling for 400 liters (422 quarts) a day and 20 reis* per 20 liters (21 quarts) for water furnished at the public fountains and hydrants.

The improvements called for in the Queimado Company's new contract would cost about $600,000. Plans and specifications have been made by experts. Owing to the financial crisis at present prevailing in Brazil, the company is unable to obtain the money required to complete the Bahia water system, and for this reason desires to sell its plant and privileges. The price asked is $1,100,000. The earning power of the Bahia waterworks, when completed in accordance with the new contract, is estimated at $300,000 per year. The agent of the above-mentioned company assures me that the person or corporation furnishing the city of Bahia with water under the new contract will also be awarded the contract for establishing a drainage system in the city and for furnishing the houses with sanitary plumbing.

*At the present rate of exchange, 1,000 reis (1 milreis) is equivalent to 25 cents in United States currency.

I am well acquainted in Bahia, and would advise Americans in this line of business to investigate this proposition.

The above-named facts and figures I have extracted from the statutes of the company and a report submitted to me at my request. If desired, I can easily procure all the necessary details.

EUGENE SEEGER,
Consul-General.

RIO DE JANEIRO, *April 11, 1902.*

ELECTRIC LIGHTING AND POWER IN VENEZUELA.

Consul Goldschmidt sends the following data from La Guayra:*

There are three electric plants run by water in Venezuela; the principal one is located at El Encantada, 16 kilometers (10 miles) from Caracas. During the rainy season it develops 400 horsepower, but from December to April this is reduced to 100 or less, as in the dry months the water is used for irrigating the adjoining lands. This enterprise was organized in 1897 with a capital of about $200,000 gold. Three vertical turbines are employed, and the generators are alternating current, and develop power of 5,000 volts. Most of the apparatus is of Swiss manufacture; the wires came from Italy.

The power developed is used by small corn mills; also by printing offices, coffee mills, etc. At night, it is employed to light Caracas, 12 cents per horsepower per night being paid for this purpose. The other industrial concerns pay from 30 to 50 cents per horsepower per day of ten hours. The company is now erecting a new plant, 1¼ miles farther away, at a point where there is a waterfall of 300 feet. When this new station is finished, the company expects to obtain 1,500 horsepower.

Another enterprise is at Merida (State of Los Andes). This was established about two years ago, to light the city; only about 150 horsepower is developed. All the machinery is of American make, and direct current.

San Cristobal (Los Andes) has an electric station of 200 horsepower to light the city and furnish power for a few industrial concerns. A small plant at Barquisimeto, with French machinery, stopped running two years ago.

The following electric plants have steam as motive power:

Caracas.—Compania de Gas y Luz Electrica de Caracas; capital, 2,300,000 bolivars ($443,900); 300 horsepower; uses patent fuel (4 tons daily) and 7,350 gallons of water. The plant has a capacity of 96 voltaic arc lamps of 2,000 candlepower, which are

*In answer to inquiries by the Philadelphia Museums, to which advance copy has been sent.

used in the streets, and 4,000 incandescent lamps of 16 candlepower for private houses. For arc lights, 50 cents is paid per night of six and one-half hours; for incandescent, $1.80 per month. These last are the Edison system.

Maracaibo.—An electric plant furnishes light for 300 arc lights of 1,000 candlepower and about 4,000 incandescent lamps. Fuel being cheap, the price of the latter is 80 cents per month for all night.

Valencia.—A plant furnishes electric power for 60 arc and 600 incandescent lights.

Puerto Cabello.—A plant furnishes power for 50 arc and 300 incandescent lights; the arc lights are of 800 candlepower.

La Guayra.—The plant has not been used for some years, and is in bad shape. An effort was made a year ago to start a new company, but nothing has been accomplished.

NOTES FROM PARA.

A new steamship service has been established between Para and the United States, which will doubtless create competition in freight rates and thus promote trade. The new line is a branch of the Prince Line, and at present consists of four new ships of about 6,000 tons cargo capacity. They will have every modern convenience, and will ply regularly between New York, the River Plata, and Brazilian ports, visiting Para every twenty-one days.

RUBBER.

Consular Agent Sanford, at Manaos, reports:

In the first quarter of 1901, the exports of rubber from Manaos to New York were 24,601 cases, valued at $6,640,224.

In the first quarter of 1902, just ended, there were exported to New York from Manaos only 15,542 cases of rubber, valued at $3,357,763; the price, as well as the quantity, being much lower.

These figures are significant, as showing the effect on business of the financial crisis.

TRADE.

There is one encouraging feature in the situation, however, and that is that whatever money the people here are spending for imports goes to the United States. This is because we are selling them their food stuffs and actual necessities.

An incident commented on here last week was the arrival from New York of a large ship completely loaded with a cargo of general American goods, bound for Iquitos, Peru, on the head waters of the Amazon.

K. K. KENNEDAY,
Consul.

PARA, *April 7, 1902.*

PUBLIC WORKS IN TAMPICO, MEXICO.

The system by which public works have been carried on in this city and harbor is worthy of note, as it differs from that in use in the United States and offers some striking advantages.

A public improvement being decided upon, plans are selected and approved, a competent engineer appointed, surveys made, and the work proceeds under the sole charge of the superintendent. All bills for material, machinery, wages, and supplies of all kinds, after approval by the Government inspector, are presented to the Department of Public Works, and, after approval there, a voucher is issued for the amount of the monthly statement, plus 10 per cent, which percentage is the pay of the superintendent in lieu of profit or loss. By this means, the Government gets the best material, for there is no advantage to the superintendent if poor quality is selected; the best of labor is employed at good wages, so there is no such thing as a strike to impede the work; and there are no subsequent official investigations to locate the responsibility for poor work or material.

Under such an arrangement as the above, the splendid jetty works at the mouth of the river and the modern custom-house were finished, the Mexican Central Railway having the work in charge.

DOCK.

With the addition of a shipment of structural iron, soon to arrive, the fiscal or Government dock will be completed at Tampico. This dock was begun in October, 1901, to replace a pile-and-timber dock which was destroyed by fire in February, 1898, and will be the first dock in the world of this special construction. It is 2,800 feet long and 80 feet wide; a steel and cement structure resting on cylinders of steel sunk to depths of from 20 to 60 feet, filled with cement, which rests on 50-foot piles driven through to the bottom of the sunken cylinders. One thousand feet of the dock, alongside of the custom-house, is covered by a steel shed, roofed with galvanized iron. The dock is located at the foot of one of the principal streets of Tampico, and will be able to accommodate, at one time, eight large steamers. With the exception of the cement and the galvanized iron, the machinery and the material used came from the United States. The work has been in charge of a Kansas company. When completed, the dock will be a splendid example of American engineering ability and constructive capacity, as well as of the quality of the public works desired by the Mexican Government at this port.

RIVER IMPROVEMENTS.

Another improvement of interest to this district is the contract made by the Government with two Americans to deepen and straighten the channels in the Panuco River and some of its most important branches—Tamuin, Tempoal, and Coy. Two corps of engineers are out now, and one special river dredge is at work. This enterprise will greatly facilitate the exchange of business between Tampico and that portion of the fertile Huasteca not reached by railroads, and will bring to this port for shipment many natural products that would otherwise be unmarketable. The cost to the Mexican Government of these improvements can only be roughly estimated, but the value of the investment is unquestioned.

TAMPICO-TUXPAN CANAL.

Another public work is the construction of a canal between this port and Tuxpan, a port about 100 miles south of Tampico, to which a very rich country is tributary, which has never been adequately developed because boats drawing over 7 feet of water could not cross the bar of the Tuxpan River.

The plans of American engineers for this work have been accepted. A large dredge and suitable boats have been ordered from Chicago manufacturers, a force of American skilled labor has been secured, and work will be under full headway by next fall. The cost of this work will approach $2,000,000.

SEWERAGE, WATERWORKS, AND PAVEMENTS.

The Federal Government is considering bids for the construction of sewerage, waterworks, drainage, and pavement for the city of Tampico.

SAML. E. MAGILL,
Consul.

TAMPICO, *April 14, 1902.*

PETROLEUM DEPOSITS IN MEXICO.

In view of the scarcity of fuel in Mexico, the exploration and exploitation of oil lands is attracting considerable attention in this country. The recent discoveries at Beaumont, Tex., have given rise to the hope that oil in paying quantities will also be found in Mexico. Very favorable indications of its presence have been discovered at several places, and liberal concessions for the development of petroleum deposits on national lands have recently been granted by the Federal Government to prospectors.

Almost certain indications of the existence of petroleum are to be seen in many States, and especially in Tamaulipas, where in places there is an abundance of asphalt, sulphur, and oil on the surface. Besides these signs, some of the topographical features, according to the opinion of an expert engineer and oil prospector, are due to the great pressure of the confined natural gas beneath. It seems, as a result of powerful erosive action during past ages, that the upper strata of earth, which served as a protection, were broken up and removed, after which the pressure of the gas below was sufficient to cause a local upheaval. Through the seams thus formed the oil, deprived of its lighter gases, escaped in the form of very heavy oil and asphaltum. In most cases, the exudation does not consist of any one substance in a paying quantity, but passes through all the grades, from an inferior, dark-colored oil to massive asphaltum rock, as hard as flint. There are also other equally encouraging indications of an abundance of gas and oil in the shale below.

Several companies, formed principally with American capital, have been organized in order to prospect and drill for oil in Mexico. The Mexican Petroleum Company has invested extensively and is now operating in the district west of Tampico. The Mexican National Oil and Development Company, recently organized under the laws of New Jersey with a capital of $1,000,000, has had its charter filed in Mexico. This company has secured valuable leases embracing over 1,000,000 acres of land, and will soon begin drilling a series of wells throughout the central part of the State of Tamaulipas. Its office is at Monterey.

Should an abundance of fuel oil be discovered in Mexico, one can scarcely conjecture the beneficial effect it would have upon her commercial and industrial development.

P. MERRILL GRIFFITH,

MATAMOROS, *April 26, 1902.* *Consul.*

PURE-FOOD LAWS IN MEXICO.

Consul W. W. Canada transmits from Veracruz, April 8, 1902, a newspaper clipping quoting a decree of the Mexican Government in regard to the pure-food supply, which is made a part of the sanitary code. The decree reads:

ARTICLE 1. Milk, of whatever animal it may be, must always be sold without the addition of water or any other substance, and when it is not from the cow the animal from which it has been drawn must be mentioned.

ART. 2. Milk from which the butter-producing component has been removed, wholly or in part, will be sold under the name of skimmed milk and must be

dispensed at special stands at which no other kind of milk is sold. The sale of the product in question must take place according to the rules laid down in the sanitary code.

ART. 3. For the purposes of the foregoing article, milk shall be considered as skimmed when it contains less than 30 grams (15.4 grains) of butter-making components per liter (1.05 quarts).

ART. 4. Under the name of milk cream, the cream of milk, without the addition of any other substance, shall be sold.

ART. 5. Under the name of sterilized milk shall be sold milk for the preservation of which provision has been made by the action of heat, and in no case by the addition of an antiseptic substance.

ART. 6. The product known as condensed milk shall never contain antiseptics or any other substance that might be prejudicial to health, and shall always be sold in closed receptacles.

ART. 7. The sale of milk from animals attacked by contagious or infectious diseases is prohibited, special precaution being taken against the following: Tuberculosis, aphthous fever, carbonic fever, symptomatic carbon, pyæmia, septicæmia, diphtheria, acute and chronic mammitis, and in particular tuberculous and icteritious maladies.

ART. 8. The only substance sold under the name of butter shall be the fat extracted from pure milk drawn from healthy animals and prepared in such manner that it shall not contain more than 5 per cent of water and at the most 2.5 per cent of the other components of milk. Nevertheless, the addition of salt (chloride of sodium), when the article is sold as salted butter, and of some inoffensive coloring matter shall be permitted.

ART. 9. Other alimentary fats which, owing to their resemblance to butter, have been palmed off in its stead must be sold under the name of margarin or some other name indicating their source and composition, and subject to the rules laid down in the sanitary code for their manufacture and sale.

ART. 10. The receptacles containing these products and the wrappings in which they are delivered to the purchaser shall be inscribed with the name under which they are sold, in legible characters of at least 1 centimeter (0.39 inch) in height.

ART. 11. Cheese, which is the product of the precipitation of casein from the milk of various animals and of subsequent maturation, shall always be sold in a good state of preservation and shall answer in character to the name under which it is sold; and only the addition of the substances that are tolerated in the case of butter shall be allowed.

ART. 12. In the preparation of bread and buns from wheat, only the pure flour of that cereal, possessing, in addition, the following qualifications, shall be employed:

I. That the flour shall have been prepared from grain from which earthy matter, the grains of other plants, and the grains of the wheat itself when damaged or spoilt have been removed.

II. That it shall not contain excessive moisture, so that at a temperature of 100° C. it shall not lose more than 18 per cent of its weight.

III. That it shall not contain foreign mineral substances, the maximum of ashes to be contained being 1 per cent.

IV. That it contain at least 8.5 per cent of dry gluten.

ART. 13. The use of any other mineral substance except salt (sodium chloride) in the making of bread and buns is forbidden.

ART. 14. In the preparation of provisions containing lard, the pure lard of hogs shall be employed.

ART. 15. Bread and buns shall never be colored yellow with any other matter except the egg, and if advertised to contain that article of food, they must really contain same.

BELIZE-NEW ORLEANS MAIL SERVICE.

The Government of British Honduras has made the inclosed contract with the United Fruit Company for mail service for the next five years.

It will be of interest to Southern exporters particularly, as showing the schedule connections and rates between this colony and the Gulf ports of the United States.

The mail service to the northern towns of Corozal and Orange Walk is carried on by the steamship *Egerton*, leaving Belize every Monday at noon and arriving here every Thursday evening, connecting both ways with steamers from New Orleans.

There has been no direct communication with New York since the withdrawal of the Tweedie Line in 1900; but beginning this month, a schooner line has been established, and a vessel should leave New York for Belize about every six weeks. Eggers & Heinlein, of New York, are the agents.

W. L. AVERY,
Consul.

BELIZE, *April 22, 1902.*

PRINCIPAL PROVISIONS OF CONTRACT.

The contractors shall convey all mails between New Orleans and Belize and between Belize and Puerto Cortez, and between Belize and every other port at which any steam vessel employed by the contractors under the stipulations of this agreement shall call, once in every week for a period of five years, to be computed from the 12th day of January, 1902, by good and efficient steam vessels of not less than 900 tons gross tonnage and capable of conveying the mails at a speed of not less than 11 knots an hour in ordinary weather.

A steam vessel shall, on every Thursday during the continuance of this agreement, at 9 o'clock in the forenoon or as soon thereafter as practicable, immediately after the mails are embarked, proceed direct to Belize, and a like vessel shall proceed with the mails direct to New Orleans. If at the appointed day the mails from England shall not have arrived at New Orleans, the vessel shall await their arrival for six hours. Before returning to New Orleans, vessels shall call, on the voyage to Puerto Cortez, at Stann Creek, Monkey River, and Punta Gorda; on the return voyage, at Monkey River, Sittee River, and Stann Creek, provided that so long as regular weekly steam communication is maintained between Belize and Punta Gorda, by the Orr and Laubenheimer Company, vessels shall be exempt from the obligation of calling at Punta Gorda. Failure to fulfill the service shall make the company liable to a fine of $50 per twenty-four hours. Mails shall be conveyed within four days between Belize and New Orleans and New Orleans and Belize, respectively, under a like penalty.

The Government shall pay the contractors the sum of $12,000 gold per annum. The vessels shall not be compelled to take pilots or be liable to the payment of port charges. The contractors shall either give security ($3,000) for the performance of this contract or else the government shall be entitled to retain,

until the determination of this agreement, the three monthly payments first to become due. The agreement shall not be assigned, underlet, or disposed of without the consent of the governor in council. Either party can terminate it at the expiration of five years from the 12th day of January, 1902, on six months' notice. The freight rates shall be: From New Orleans to Belize or from Belize to New Orleans, 85 cents per barrel, or, where the articles shipped are not in barrels, 20 cents per cubic foot measurement.

The rates of passage shall be:

From and to—	Cabin.	Deck.
From Belize to New Orleans	$25.00	$15.00
From New Orleans to Belize	25.00	15.00
Return tickets, available for 6 months	45.00	.....
Southern service, local:*		
Belize to or from Stann Creek	2.00	1.00
Belize to or from Monkey River	3.00	1.50
Belize to or from Punta Gorda	4.00	2.00

*Meals and berth not included in fare.

Tariff.—Berths, first class, $1.50; second class, 75 cents. Breakfast, $1.00; lunch, 50 cents; dinner, $1.50; second class, half of first.

CUSTOMS DUTIES IN GUADELOUPE.

I have to report certain modifications of the customs regulations of this colony, resulting in lesser duties on many articles, some of which are of interest to our exporters.

Duties on articles imported into Guadeloupe are collected under several categories: First, customs duty, this being the regular French tariff; second, octroi duties; third, quay duties; and fourth, statistics duty. I inclose tabular statements of the last two. The modifications I have to report fall under the second category.

The octroi duty is styled "tax for the benefit of the communes." However, the colony shares in this source of revenue to an amount not to exceed one-fifth.

In 1892, the council-general imposed another form of duty, the "droit de consommation," and this tax was collected until 1898. It was then declared illegal; but, needing the revenue, the council-general increased the octroi by amounts even greater than those of the suppressed droit de consommation. Since that time, the octroi has produced a revenue estimated at about $40,000 annually for the colony and more than $180,000 for the communes.

But the increases made were so great that the merchants carried the question to the Cour de Cassation, which declared that the imposition of any octroi upon an article when "similar articles are manufactured or produced in the colony or its dependencies" was illegal.

Nevertheless, in the budget for this year, the total receipts from the octroi were included. A few weeks ago, however, certain importers of butter and corn protested against the payment of octroi upon these articles, on the ground that butter is made in St. Martin and corn is grown in various places in the colony. The claims were allowed, and others followed. The chamber of commerce of this city consulted with the governor, and he pointed out that, should he publish a decree in the sense of the court's decision, a very serious shrinkage in the already too scanty revenues of the colony would result, while those of the communes would be almost wiped out. He proposes that the custom-house shall in all cases, except of importations of corn, butter, beans, and salt, impose the full duty, including the octroi. If the importer makes no protest, well and good; if he protests, the matter is to be referred to the chief customs officer at Basse Terre, with recourse to the governor in privy council should that officer's decision be adverse, each decision to be made for each special case and individual. The chamber of commerce remonstrates against this plan, claiming that an exemption granted to any merchant is granted, not to the merchant as an individual, but to the article in question, and, therefore, such article should become immediately exempt from the octroi.

I inclose a tabular statement of those articles which fall under the quoted decision. In this table, I have included those articles about which I believe there is no controversy possible, omitting those only on which an insignificant duty is imposed, or which are imported in small quantities—such as ladies' bonnets—and also some articles to which the applicability of the decision is doubtful, as, for example, lard.

Of particular interest to our exporters are those articles falling under the heads of animals, alimentary (farinaceous), animal products, vegetable products, garments, manufactures (particularly of leather), carriages, and furniture. Dried and fresh vegetables of all kinds are evidently exempt, including pease and beans, and I think that cereal grains would also be found to fall under the provisions of the decision. Of considerable importance is the item of carriages, upon which a very high duty has been imposed, and of nearly as great interest is furniture of all kinds.

I have purposely included one item upon which a very small duty is levied—panama hats "and the like," because of the expression "et similaires," used in the decision. It is an exceedingly broad term, and I think that many articles I have omitted from the list might properly be found to have place there. This will be a matter for our exporters to decide, after consultation with their agents or consignees here; but I think this would be a good moment to increase

our trade in carriages, furniture, ready-made garments, boots and shoes, and animals. Possibly, too, some new trade could be opened up in cheese and the better qualities of butter. We now control the market for pease and beans.

LOUIS H. AYMÉ,
Consul.

GUADELOUPE, *April 23, 1902.*

Quay duties, Pointe a Pitre, Guadeloupe.

Description.	Unit.	Rate.	
		Francs.	*Cents.*
From 1 to 100 kilograms (2.2046 to 220.46 pounds)	Case	0.15	2.55
From 101 to 200 kilograms (440.92 pounds)	do	.25	4.25
From 201 to 300 kilograms (661.38 pounds)	do	.35	5.95
From 301 to 400 kilograms (881.84 pounds)	do	.45	7.65
From 401 to 500 kilograms (1,102.3 pounds)	do	.55	9.35
From 501 to 600 kilograms (1,132.27 pounds)	do	.65	11.05
From 601 to 1,000 kilograms (2,204.6 pounds)	do	.75	12.75
Above 1,000 kilograms	100 kilograms	.10	1.7
Horses	Head	1.00	17
Asses and bullocks	do	.50	8.5

NOTE. -1 kilogram equals 2.2046 pounds; 1 franc Guadeloupe paper at present rate of exchange, 12 per cent, equals 17 cents.

Statistics duties.

Description.	Unit.	Rate.	
		Francs.	*Cents.*
On all merchandise in barrels, cases, sacks, etc	Package	0.15	2.55
On all merchandise in bulk	1,000 kilograms	.15	2.55
On all animals (horses, mules, cattle, asses, sheep, goats, and pigs)	Head	.15	2.55

Articles affected by the new decision.

Article.	Unit.	Rate.	
Animals:		*Francs.*	
Horses 1.38 meters (13½ hands) and less	Head	20.00	*$3.40
Horses above 1.38 meters	do	75.00	12.75
Mules 1.33 meters (13 hands) and less	do	15.00	2.55
Mules above 1.33 meters	do	25.00	4.25
Asses	do	5.00	.85
Bulls and oxen	do	10.00	1.70
Calves, male	do	3.00	.51
Cows and heifers	do	8.00	1.36
Pigs, sheep, and goats	do	1.00	.17
Chickens and game birds	Dozen	1.20	.204
Geese and turkeys	Head	.50	.085
Turtles	Ad valorem	5 per cent.	5 per cent.
Animal products:			
Raw skins	100 kilograms †	2.50	.425
Butter, salted and imitations, oleomargarine, etc	do	18.00	3.06
Cheese, all kinds	do	18.00	3.06

*In the column of equivalents of value in United States money, allowance is made for the actually existing discount, as these duties are payable in Guadeloupe paper money. The rate is calculated at 12 per cent, which makes the value of the franc 17 cents.

† 220.46 pounds.

Articles affected by the new decision—Continued.

Article.	Unit.	Rate.	
		Francs.	
Alimentary (farinaceous):			
Cereals (corn, in grains)	Hectoliter*	1.00	$0.17
Bread	100 kilograms†	.10	.017
Biscuits	do	4.50	.765
Potatoes	do	1.50	.255
Dried vegetables (beans, pease, etc.)	Hectoliter*	3.00	.51
Colonial products:			
Sugar, refined	100 kilograms†	10.00	1.70
Molasses	Hectoliter‡	.50	.085
Sirups, candies, sweet biscuits, sweetmeats, etc	100 kilograms†	30.00	5.10
Pepper, pimento, ginger	do	9.00	1.53
Cinnamon, nutmegs, mace, cloves	do	35.00	5.95
Tobacco (in leaf)	do	10.00	1.70
Woods:			
Hard woods	Stere§	5.00	.85
Spars, masts, oars, etc	Ad valorem	5 per cent.	5 per cent.
Shingles	Thousand	1.50 to 3.00	.255 to .31
Cabinet woods	Meter‖	.20	.034
Dyes and tannins:			
Roots, herbs, flowers, leaves, barks, woods, seeds, and fruits, in powder (bruised or not, fit for dyeing or tanning).	Ad valorem	10 per cent.	10 per cent.
Filaments:			
Cotton, carded	100 kilograms†	10.00	1.70
Cotton batting	Ad valorem	10 per cent.	10 per cent.
Vegetable products:			
Beets and other green vegetables	100 kilograms†	2.00	.34
Hay, straw, and fodder	do	.60	.102
Earths, etc.:			
Lime and plaster	do	.20	.034
Sulphur	do	1.50	.255
Chemical products (salt, sea and rock)	do	1.00	.17
Various products:			
Soaps, other than perfumed	do	5.00	.85
Candles of all kinds	do	24.00	4.08
Liquors, etc.:			
Distilled liquors and liqueurs of all kinds	Hectoliter‡	15.00	2.55
Mineral waters of all kinds, jugs included	do	4.00	.68
Pottery:			
Jars—			
Large	Each	1.00	.17
Medium	do	.70	.119
Small	do	.30	.051
Textiles (hammocks of all materials)	do	.75	.1275
Garments:			
For workingmen, jute or blondine	do	.05	.0085
Coats for workingmen	do	.40	.068
Shirts—			
Indienne and oxford	Dozen	1.50	.255
Flannel or imitation	do	1.25	.2125
White, for men or women	do	3.00	.51
Trousers, woolen cloth, or printed	Each	.40	.068
Trousers and blouses of other materials	do	.25	.0425
Vests—			
Wool or cloth	do	.35	.0595
Of other materials, including flannels	do	.25	.0425
Frock coats, jackets, and coats, wool or cloth	do	1.60	.272
Blouses, wool or cloth	do	.75	.1275

* 2.838 bushels.
† 220.46 pounds.
‡ 26.417 gallons.
§ 35 cubic feet.
‖ 3.28 feet.

Articles affected by the new decision—Continued.

Article.	Unit.	Rate.	
		Francs.	
Garments—Continued.			
Drawers—			
Cotton	Dozen	1.00	$0.17
Linen	do	2.00	.34
All other garments of any material	Ad valorem	10 per cent.	10 per cent.
Manufactures:			
Leather—			
Currier's	100 kilograms*	27.00	4.59
Waxed or shagreened	do	50.00	8.50
For bookbinding	do	40.00	6.80
Morocco, varnished	do	90.00	15.30
White, for straps	do	40.00	6.80
Carriage, varnished	Each	5.00	.85
All other	Ad valorem	9 per cent.	9 per cent.
Harness—			
Dray and wagon	Each	5.00	.85
Accessories to above	Ad valorem	9 per cent.	9 per cent.
Saddles, complete	Each	4.00	.68
Carriage	Per collar	9.00	1.53
Accessories to above	Ad valorem	9 per cent.	9 per cent.
Gloves, leather	Pair	.15	.0255
Trunks, and all other manufactures of leather not classified.	Ad valorem	9 per cent.	9 per cent.
Shoes—			
For men	Pair	.75	.1275
Boys', Nos. 34 to 36	do	.60	.102
Women's	do	.50	.085
Girls', Nos. 27 to 33	do	.40	.068
Children's	do	.20	.034
Babies', Nos. 18 to 22	do	.10	.017
Slippers, with or without heel	do	.15	.0255
Sandals	do	.05	.0085
Hats, panama and other	Each	.75	.1275
Cordage, including string and fishing lines	100 kilograms*	10.00	1.70
Jewelry—			
Including settings, gold	do	450.00	76.50
As above, of silver	do	30.00	5.10
Carriages—			
1 seat, covered or open	Each	60.00	10.20
2 seats—			
Covered	do	120.00	20.40
Open	do	80.00	13.60
4 seats or more, covered	do	200.00	34.00
As above, open	do	120.00	20.40
Wagons—			
Agricultural	do	10.00	1.70
Railroad, passenger	do	20.00	3.40
Carts	do	5.00	.85
Duplicate parts for carriages	Ad valorem	10 per cent.	10 per cent.
Vessels—			
Sea-going, ready for service	Ton	5.00	.85
In parts, including rigging	Ad valorem	5 per cent.	5 per cent.
Matches	Gross	2.55	.4335
Trunks other than leather	Series from Nos. 2 to 5.	90.00	15.30
Furniture, mounted or not:			
Sofas—			
Cane-seated	Each	6.00	1.02
Upholstered	do	15.00	2.55

* 220.46 pounds.

Articles affected by the new decision—Continued.

Article.	Unit.	Rate.	
		Francs.	
Furniture, mounted or not—Continued.			
Chairs—			
Arm and rocking, cane	Each	1.50	$0.255
Arm and rocking, upholstered	do	5.00	.85
Straw seats	do	.30	.051
Cane seats	do	.60	.102
Upholstered	do	1.50	.255
Pillows, ticking and feathers	do	.15	.0255
Bolsters, ticking and feathers	do	.25	.0425
All other furniture, including veneered and carved.	Ad valorem	10 per cent.	10 per cent.

FREIGHT REBATES ON JAMAICA SUGAR FOR ENGLAND.

Consul W. B. Sorsby transmits from Kingston, April 7, 1902, copy of an editorial which appeared in the Daily Gleaner of that city on the 4th instant reading, in part:

The commercial and planting community will be much interested in the new development which has taken place in the sugar situation. Sir Alfred Jones has announced his intention of remitting the freight on sugar carried in his vessels from Kingston to Bristol.

Lately, the conditions in America have been so favorable to our sugar that it has been gradually finding its way there to an ever greater extent. From April 1, 1900, to March 31, 1901, the following were the exports from the colony:

	Tons.
United Kingdom	2,868
United States	11,759
Canada	1,254
Other countries	1,178

From April 1, 1901, to March 22, 1902, the following were the exports:

	Tons.
United Kingdom	1,335
United States	12,834
Canada	512
Other countries	568

Thus, even in the course of a year, there has been a considerable shrinkage in the exports to England, to Canada, and to other countries, and a considerable increase of the exports to America. Will the concession of free freight to England arrest this process? The freight on sugar from Kingston to Bristol is 20s. ($4.86) per ton. Placing the advantage which this gives to the sugar planters against the advantage which the American market at present gives the planter, the difference will be a matter of 2s. 6d. (60 cents) per ton in favor of the sugar landed in Bristol. But one has to remember the fact that the great market of England is London, and that the bulk of the West Indian sugar goes there. If the carriage from Bristol to London is taken into account, the result is seen to be that the conditions in America and England will be equalized, and that no advantage will be gained over America by the sugar shipped to England under this concession, generous as it is. There

are several other factors influencing the situation which must be considered in estimating the value of the remission and its effect on the local sugar industry. Most of the sugar produced in this country is of a dark color, only a few of the best estates producing white sugar. In America, the market is regulated by the 89° test, and any sugar testing above that point receives a bonus according to its quality, and any sugar below is worth so much less, whether it be dark or white. In England, on the other hand, a duty is charged on the degree of polarization, and all sugar above 76° is charged in excess in proportion, so that the better the quality which is sent the greater the cost. The English market largely supplies the grocery and confectionery trade, with which the better classes of sugars are more in favor. It seems, therefore, that America gives a better inducement than the English market, apart from all other considerations. Some of these considerations are, however, not unimportant in the eyes of the Jamaican planter. For instance, his sugar finds its way quickly to America, and the planter receives his return in a much shorter period of time than he does if he ships to England, and this is a point which strongly appeals to most planters. On the whole, it is obvious that the estates which will benefit by the remission of freight are those which manufacture specially for England and those which are bound by financial reasons to market their produce there. The great majority of the estates that are free to find the best market will no doubt continue to ship to America. Unless the inducement to ship to England is greater—unless there is some tangible benefit to be gained—it is to be feared that the planters who ship to America will not care to disturb their existing business relations. At the same time, as we have said, the concession will come as a boon to those estates whose market is England.

A cablegram this morning states that the English Government has been asked by the West Indian committee to give a bonus of £2 ($9.73) a ton on West Indian sugar until the inauguration of the convention. This seems to be a curious step for the West Indian committee to take, unless there is something beneath it of which we at present can not see the drift. At present, America imposes a countervailing duty on bounty-fed sugar, and if a bounty were given to Jamaica planters, their sugar would come under the operation of the countervailing law, and the American market would practically be shut against us. The effect of granting a bounty would be to force our sugars into the English market. The bonus of £2 ($9.73) per ton, along with the remission of freight, would, of course, be a good thing for the planters and would make the English market a profitable one. The West Indian committee is in close touch with the Colonial Office, and it may be that the proposition which they have put forward foreshadows the policy of the Government. It seems to be clear, now, that the latter have put their shoulder to the wheel, and, having obtained the abolition of the bounties, will not let the West Indies suffer for the want of a little further concession. They are probably saying to themselves that they may as well do the business thoroughly, and tide over the period until the abolition of the bounties by providing substantial relief for the planter; and this will not the less commend itself to them in that it involves the reversion of the trade now rapidly drifting to the United States. Nothing short of something like this will be of any use, and certainly the remission of the freight only, in the way it has been done, can not justify the Government for not doing something to relieve the existing strain. It is to be hoped that something will be done, for the price of sugar is exceptionally low in the United States. A slight rise has taken place, owing to the fact that the Cuban estates are holding back their produce in view of obtaining the benefit of the 20 per cent reduction; but when their supplies flood the market, the situation will be much worse for the Jamaica planter.

WEST INDIAN SUGAR FOR CANADA.

The shipment of sugar from this island to the United States for the first three months of this year is markedly less than for the corresponding period of 1901—a decline from 4,505,578 pounds to 4,212,863 pounds. As yet, the shipping season has but little more than begun. The grinding season is at its height. From a planter's point of view, the season so far has been almost ideal, and the crop is yielding as large returns to the acre, of as high a test sugar, as has been attained for years.

The decrease in shipments to the United States is due to the fact that much of the sugar formerly sent to New York now finds a market in Canada. There is an advantage to the shipper of $1.25 a ton on sugar sent to Halifax, as in New York the charges for wharfage and for reshipping to the refinery average about that amount. These charges are not necessary in Halifax. Again, considerable delay is involved in the adjustment of the tares by the custom-house in New York, and more immediate returns are obtained from Halifax. These considerations, arising at a time when the sugar market is unsettled and the price of muscovado sugar is low and fluctuating, are enough, it has proved, to turn the scale in favor of Canada.

I am not informed as to the action of other sugar-producing islands but suppose the conditions must be the same.

JOSEPH HAVEN,
Commercial Agent.

ST. CHRISTOPHER, *April 14, 1902.*

THE DEVELOPMENT OF CANADA.

The development of the Dominion of Canada is progressing at a rapid pace. Few people in other countries comprehend that Canada represents 30 per cent of the entire British Empire and one-fifteenth of the land area of the world. At no period since the settlement of the country has it received so large an inflow of immigration as within the last two years. The production of the country is immense, when it is considered that the population is not over 5,500,000. Manufacturing industries are increasing and are generally prosperous. The men managing them are enterprising, and with great energy are seeking trade over all the world.

The agricultural wealth of the country is enormous. Immense cultivated areas furnish grain for the miller, fruit and vegetables for the canner; beef, pork, and mutton for the meat trade; and cream for the butter and cheese factories. Canada's forests are now regarded as one of the chief sources for the supply of pulp wood for

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the paper industry of the world; and on her famous fisheries rest many important industries. Great deposits of the finest iron have recently been found; while good lead, asbestus, nickel, copper, silver, and mica mines are being opened up in all directions. The facilities for transportation are excellent. The Canadian Pacific Railway stretches from ocean to ocean, while the Grand Trunk covers the eastern Provinces. Both systems are continually growing. Within two or three years, another great line of railway will be completed, extending from Halifax to Vancouver and Victoria. Feeders to all these lines are being constantly constructed. No country, except the United States, has gone forward so rapidly in its transportation facilities as Canada. In 1867, the total railway track laid was 2,087 miles and in 1900 it was 17,824 miles. Several hundred miles were added last year.

The work of canal construction has been vigorously conducted. The total amount spent in construction and enlargement up to 1900 was $95,316,000, of which $74,600,000 was expended since confederation. Canada can justly boast of having one of the most complete systems of canals in the world. The governments since confederation have contributed for the construction of railways and canals $292,921,000. The total capital invested in railways and canals in Canada is $1,100,000,000.

During the year 1901, the Dominion of Canada reached the highest mark in her progress. Compared with ten years ago her exports have doubled, having increased from $98,000,000 to $196,000,000, while her imports have grown from $119,000,000 to $190,000,000. The public deposits in the banks now exceed $400,000,000. These figures are evidence of great prosperity.

The harvest of last season was bountiful. The Government statement shows that it amounted in Manitoba to no less than 85,000,000 bushels of grain, of which 50,000,000 bushels were wheat. Another Government estimate places the total value of the products from the farms in Manitoba last year at $40,000,000, exclusive of the revenue derived from the sale of stock, hay, or root crops, which was not included in the calculations. Not only was the grain crop large, but it was garnered in good condition and is realizing a good price; and although it must not be concluded that the large sum of $40,000,000 has already gone into the pockets of the farmers (for there is no doubt that immense quantities of grain are still in the hands of producers, owing to the impossibility of obtaining transport to the coast), nevertheless this splendid harvest can not fail to have an extremely beneficial effect upon all classes of the community.

During the past year, there has been a largely increased demand by real settlers for agricultural lands. In 1901, the Canadian Pacific Railway sold 830,000 acres, compared with 416,000 acres in 1900.

The Canada Northwest Land Company disposed of 121,000 acres, compared with 71,000 acres in the preceding year, and I am informed that the demand has by no means been satisfied by these large sales.

During last month, there were 101,029.22 acres sold by the Canadian Pacific Railway for $333,852.22; for the same month in 1901, 4,614 acres were sold for $122,362.47.

Few people realize that Canada has 550,000 cotton spindles running, and that all the mills are making good profits.

TRADE AND COMMERCE.

The latest official statistics of the export trade of the Dominion are interesting, as showing a steady expansion in the principal commodities which make up the resources of the country, with the exception of a limited few, on which the duty was raised some years ago by the United States to such an extent as to prevent further shipments. Chief among these was barley. During the four years prior to 1891, the number of bushels of barley exported averaged over 9,600,000, amounting in value to nearly $6,000,000 annually. In 1899, the exports were reduced to 386,768 bushels. Since then they have been showing an increase, the last two years averaging over 2,500,000 bushels. Wheat exports for the fiscal year ended June 30, 1887, amounted to 9,127,045 bushels; last year, they amounted to 18,936,252 bushels. Wheat-flour exports show an increase of almost double the quantity since 1887, last year's exports being 4,030,746 barrels.

Trade returns for the year ended December 30, 1901, show the following increases in Canadian imports from Great Britain:

Article.	Quantity.	Article.	Quantity.
	Pounds.		*Pounds.*
Spirits	6,000	Galvanized sheets	50,000
Cotton piece goods	70,000	Cast and wrought iron	17,000
Jute piece goods	19,000	Old iron	27,000
Silk manufactures	10,000	Lead	8,000
Woolen tissues	25,000	Apparel and slops	35,000
Worsted tissues	103,000	Earthenware	11,000
Carpets	8,000	Stationery	9,000
Railroad iron and steel	218,000		

The chief decreases are:

Article.	Quantity.	Article.	Quantity.
	Pounds.		*Pounds.*
Salt	11,000	Tin plates	93,000
Wool	18,000	Unwrought steel	25,000
Linen piece goods	10,000	Unwrought tin	14,000
Lace	11,000	Haberdashery	27,000
Cutlery	8,000	Cement	24,000
Hardware	6,000	Seed oil	6,000

The trade with Great Britain for the seven years from 1895 to 1901 was as follows:

Year.	Imports for consumption (merchandise only), dutiable and free.	Exports to Great Britain.	
		Home produce.	Home and foreign products.
1895	$31,059,332	$57,203,564	$61,856,900
1896	32,824,505	62,717,941	66,689,253
1897	29,401,188	69,533,852	77,227,502
1898	32,043,461	93,065,019	104,998,818
1899	36,931,323	85,113,681	99,086,981
1900	44,279,983	96,562,875	107,735,968
1901	42,819,995	92,857,525	105,328,956

Trade with Great Britain has increased since the adoption of a preferential tariff. The trade of Canada with the United States also shows a gain.

The trade with the United States for the last five years has been:

Year.	Exports.	Imports.
1897	$49,373,492	$61,649,000
1898	45,705,300	78,705,500
1899	45,133,500	93,007,100
1900	68,619,000	109,844,300
1901	72,382,200	110,485,000
Increase in five years	23,008,800	48,836,000

The increase in trade with the chief countries in 1901 was as follows:

Country.	Increase in exports.		Increase in imports.	
		Per cent.		*Per cent.*
Great Britain	$28,101,400	36.4	$13,606,000	46.2
United States	23,008,400	46.5	48,836,000	79.2
France	890,600	129	2,796,700	107
Germany	1,096,100	104.8	528,100	8.1
Belgium	2,451,600	709	2,664,800	229
Newfoundland	567,700	33.5	173,500	38.3
Australia	893,200	62.2	173,700	38.8
South America	113,700	8	427,800	68.9
Switzerland			380,500	171

The following shows the amount of duty collected on the imports of goods from several of the above countries in 1897 and 1901, with their respective percentages in those years:

Country.	Duty collected in 1897.		Duty collected in 1901.	
		Per cent.		*Per cent.*
Great Britain	$6,205,366	21.1	$7,845,406	18.2
United States	8,147,075	13.2	13,311,749	12
France	969,539	37.3	1,794,455	33.2
Germany	1,489,755	23	1,811,974	25.8
Belgium	250,770	21.6	1,081,162	28.2

The lower average duty on imports from the United States is accounted for by the very large proportion of goods received from the United States which are raw materials and are entered free of duty. Thus, last year, out of a total value of imports from America amounting to $119,306,775, no less than $56,483,714, or nearly 50 per cent, were free of duty, while of the total imports of $43,164,297 from Great Britain only $11,295,987, or 26 per cent, were free of duty; indeed, out of the total amount of free goods, over 90 per cent came from the United States. The average duty on American dutiable imports was 21.19 per cent.

A few of the chief lines of export, compared with those of the previous year, are shown below:

Article.	1900.	1901.
Cheese	$20,483,981	$21,123,251
Minerals	24,779,388	40,531,314
Meats	13,648,428	13,651,062
Lumber	25,059,344	24,969,173
Grain	27,795,181	27,447,691
Fish	10,620,146	10,655,808
Butter	5,429,563	3,355,197
Cattle	8,704,463	8,789,687
Flour and meal	3,293,059	4,531,719
Hay	1,414,119	2,097,901
Agricultural machinery	1,693,581	1,749,565
Clothing and garments	190,372	664,111
Cottons	429,564	581,732
Iron and steel manufactures	1,743,218	1,797,406
Manufactures of leather	1,889,507	2,453,204

GENERAL EXPORTS.

Products of the mine exported from Canada have increased in value from an average of $5,000,000 before 1894 to $40,367,683 in the fiscal year 1901.

Since the Department of Agriculture encouraged shipping to South Africa in December, 1899, Canada has sent goods there to the

value of over $6,000,000, distributed in produce as follows: Hay, 180,200 tons; preserved beef, 995 tons; oats, 9,650 tons; flour, 4,100 tons; jam, 12½ tons; baked beans, 1,000 cases, containing 2-pound cans; boneless chicken, 1,000 cases, containing 24,000 1-pound tins; boneless chicken, 27,000 tins, each 12 ounces; saddlery, 8,875 sets of saddles, bridles, etc.; blankets, 975; clothing, 30,000 great coats and 50,000 serge suits; wagons, 50; tent pin bags, 10,000.

Fishery exports have been practically stationary, at an average of $10,000,000 for ten years.

The exports of forest products have varied somewhat from year to year since confederation; but the total last year was only $1,000,000 more than that of 1873, and an average of $25,000,000 for the whole period since 1870 would not be far out of the way.

Of exports of manufactures, Canada had a value of $5,000,000 in 1890, of $8,000,000 in 1895, and of $16,012,208 in 1901.

The increase in exported products of the mine is largely due to the discovery of placer gold in the Yukon.

PROGRESSIVE EXPORTS OF MANUFACTURES.

In view of the fact that there has been a progressive increase in the exports of manufactured articles produced in Canada, it is interesting to note what are the principal items of this export and the several directions in which they are dispatched.

The largest single item is that of leather, which stands, in the returns for 1901, at $1,975,383, of which Great Britain took $1,820,093, or practically the whole. How large a proportion of the total product of the Dominion is represented by this export may, in some measure, be inferred from the statement that the importation of raw hides in the same year was of a value of $4,111,538, of which $675,330, the second largest amount, came from Great Britain.

Next in order of value comes wood pulp, $1,938,246, of which $934,722 went to Great Britain and $937,330 to the United States. In 1894, the amounts were $178,255 to Great Britain and $368,875 to the United States. There is thus seen to be a material improvement in both directions.

Third in order of value are agricultural implements, $1,749,565, for which, oddly enough, the largest single bill was collected from Germany. The amount was $474,249. Australasia was second, with $441,761; Great Britain third, with $375,634; and France fourth, with $217,897. These implements also sold for considerable sums in Holland, Russia, the United States ($37,120), South America, and British Africa, in the order named, and in small quantities in several other countries.

It will possibly upset some long-standing theories about the course of trade to learn that, in the year 1901, Canada sold $289,188

worth of clothing and wearing apparel in Great Britain, out of a total export of $664,111. In 1894, Canada was exporting similar goods, but only to the value of $42,191 altogether, and of that only $7,206 worth went to Great Britain. In the same year, $23,615 worth was exported to the United States. In 1901, the Americans still purchased Canadian clothes to the value of $45,502, though it is known, of course, that they buy a great deal more on their visits. China, which stood for less than $1,000 in the returns for 1894, is down for $259,890 last year, exclusive of Hongkong, which took $19,222 more. Australasia and Newfoundland received $20,000 each.

Of steel and its manufactures, there was exported $607,426 worth in 1901, of which just half, or $304,589, went to the United States and $142,297 to Great Britain. Germany and Newfoundland were the next best customers, at about $50,000 each. It is also worth noting that in 1901 Canada sent Great Britain $31,789 worth of Canadian hardware and the United States $33,189 worth; she also sent to Great Britain $153,152 worth of machinery and to the United States $289,603. The total export of machinery was for $659,299; in 1894, it was $150,430.

For Canadian cotton fabrics, Australasia was by long odds tne best market in 1901. Out of a total of $381,209, Australasia accounts for $209,480; the United States, for $72,411; Great Britain, for $47,026; China, for $30,834; and Japan, for $13,117. What is a little odd, unless it is explained by the increased sale of clothing, is that the China trade has fallen from $462,069 in 1894 to the present figure.

The demand for Canadian whiskies has increased from $176,816 in 1894 to $440,688. According to trade returns, the goods now go to thirty-one countries. The Americans, at $289,892, are the principal customers; the British next, at $38,726.

The trade in musical instruments is also well estabished. Two hundred and ten thousand five hundred and eighty-eight dollars' worth of organs was exported in 1894 and $458,506 worth in 1901. Of this, Great Britain took $391,457 worth.

A trade in household furniture has also been worked up of late in Great Britain. In 1894, it amounted to $37,125; last year to $163,655.

Of woolens, Canada exported last year $12,399 worth to Great Britain and $48,589 worth to the United States.

HAY EXPORTS.

The exports of hay from Canada for the fiscal year ended June 30, 1901, aggregated 252,979 tons, which are perhaps the largest ever known. Of this, the United States took 155,223 tons; Great

Britain and her dependencies, 94,528 tons; and other countries, 3,228 tons. The present fiscal year, however, is expected to show a large increase over last year's exports, as the shipments to Great Britain and South Africa will be much heavier, while the requirements of the United States will absorb considerable hay from the Province of Quebec.

EGG EXPORTS.

The export of eggs from Canada to different countries for the year ended June 30, 1901, was as follows:

To—	Quantity.	Value.
	Dozen.	
Great Britain	11,273,452	$1,677,727
Australasia	2,800	620
Belgium	3,003	520
British West Indies	4,913	757
Newfoundland	10,816	1,563
China	580	98
St. Pierre	29,343	3,826
United States	37,197	7,185

HORSE EXPORTS.

The principal export of horses was to South Africa. The British Government purchased in Canada for war purposes, last year, a total of 11,364 head, and the demand is greater to-day than ever.

CANADIAN LEAD INDUSTRY.

A deputation representing the consolidated boards of trade of British Columbia, the smelting interests, and the mining interests recently waited on the premier of the Dominion Government and his cabinet and asked that the bonus of $100,000 granted last year to encourage the production of refined lead be paid on the production of 14,000 tons. The bonus was to be paid at the rate of $5 a ton on 20,000 tons. The deputation now asks the payment of the same sum on 14,000 tons, making about $7 per ton bonus. Next, they asked that the duty on pig lead be increased from 15 per cent to 25 per cent. They suggested that the 50,000 acres of coal lands in British Columbia should be placed in the hands of an independent company.

SMUGGLING.

There is no question that there is an enormous amount of smuggling from Canada into the United States and from the United States into Canada. One large firm in Montreal is said to have succeeded

in smuggling into the United States tens of thousands of dollars' worth of goods every year. It sells largely to American visitors, and agrees to deliver the goods to their homes free of duty. The matter has been fully exposed, but the practice still continues.

There is smuggling all along the border line from the Atlantic to the Pacific coast.

JOHN L. BITTINGER,
Consul-General.

MONTREAL, *April 8, 1902.*

ELECTRICITY IN CANADA.

The use of electricity in Canada continues to increase, and electrical supplies come largely from the United States. They are admitted to be of a better quality than can be had from any other country, and they can also be ordered and received within a few days.

ELECTRIC LIGHT.

Mr. George Johnson, the Dominion statistician, in his annual summary of the use of electricity in Canada, says the number of lighting companies has increased from 259 in 1898 to 306 in 1901. The arc lights in use increased from 10,389 to 12,800, and the incandescent lamps from 463,615 to 815,676. The use of electricity for lighting purposes has risen 60 per cent.

Of the total 306 companies, the Province of Ontario has 196, or 64 per cent; Quebec has 50, Nova Scotia 21, British Columbia 14, New Brunswick 11, Manitoba 6, Northwest Territories 5, and Prince Edward Island 3.

Ontario cities, towns, and villages have availed themselves of electricity for lighting purposes to a very great extent. There are 78 of them which have either municipal plants or are supplied by companies; some have more than one plant. In Quebec, 42 cities have electric-light plants; in Nova Scotia, 20; and in New Brunswick, 10.

RURAL ELECTRIC RAILWAYS.

Should the electric railway charters which the legislature has been asked to pass this year be granted, and should all the lines projected be constructed, no less than 1,046 miles will be added to the rural electric-railway mileage of the Province of Ontario. Twelve companies figure in the applications, the territory in which they are interested extending from Cornwall to Windsor; and if the tracks were laid, there would be a continuous line between those two

points, with the exception of a short hiatus from Glencoe to Tecumseh; while to the north, another system will reach from London to Owen Sound, skirting the shore of Lake Huron.

These railways would revolutionize transportation in the country districts and give remote sections market facilities which would greatly enhance the value of farm products. Many of the lines tap territory not conveniently served by present railways. It is stated that American capital is behind the roads projected to radiate from Hamilton to Toronto, Guelph, and Waterloo.

Many of the electric-railway charters passed in recent years have contained special clauses restricting the passenger rates.

In the Province of Quebec, a number of electric-railway companies have recently been chartered by the provincial legislature, and it is expected that 50 miles will be constructed during the coming summer.

JOHN L. BITTINGER,
Consul-General.

MONTREAL, *March 31, 1902.*

PLATINUM MINING IN BRITISH COLUMBIA.

Platinum has long been mined in the Similkameen, about 150 miles east of Vancouver. It is said that Chinamen have been earning living wages for the past fifteen years by recovering platinum from the placer deposits of the Tulameen River and of Granite Creek. Local newspapers announce that a company has just been formed to develop the platinum claims in that vicinity, and that it will begin operations at once. The name of this organization is the Slate Creek Hydraulic Company, and it is understood that a considerable amount of capital is interested in it, largely from the city of Seattle, Wash. It is proposed to work a tract of 320 acres on Slate Creek. Slate Creek is just over the divide of the Similkameen River, on the Washington side, but operations will be extended into British Columbia territory also. It is asserted that the company is very sanguine of success. In that case, there will undoubtedly be a rush of miners to the Similkameen district.

The fact that the creeks in this region have all along been producing more or less platinum will doubtless lead many others to begin prospecting. The proportion of precious metals in the gravel, as shown by hundreds of assays made by the Slate Creek Hydraulic Company, is about two-thirds gold to one-third coarse platinum. Some of the nuggets are as large as the little finger of a man's hand. The gravel runs 25 cents to the yard in platinum and gold. It is believed, however, that somewhere in the 320 acres of the company's

claim the old bed of the creek will be crossed and that much richer gravel will then be found.

Another deposit of platinum is also said to have been discovered in Kennedy Mountain, near Princeton, British Columbia. Samples of the gravel have been sent east for assay, and the tests have proved so satisfactory that capitalists have become interested and are inquiring as to the probable amount of platinum available. It is expected that there will be an exodus of prospectors and miners to that region as soon as the snow leaves the ground.

L. EDWIN DUDLEY,
Consul.

VANCOUVER, *April 17, 1902.*

SALMON IN BRITISH COLUMBIA.

The legislative assembly has appropriated $15,000 for the construction and maintenance of a sockeye-salmon hatchery on the Fraser River, at the outlet of Seton Lake, in Lillooet district, the establishment to have a hatching capacity of 25,000,000 sockeye eggs. Steps are also being taken by the provincial government to secure from the Dominion authorities permission to build and use fishing traps instead of gill nets exclusively, as is now the law.

Returns show that the salmon pack of British Columbia for the season of 1901, notwithstanding the labor troubles and other disturbances, was the largest in the history of the Province. The detailed figures are:

Salmon.	Fraser River.	Skeena River.	Rivers Inlet.	Other places.	Total.
	Cases.	*Cases.*	*Cases.*	*Cases.*	*Cases.*
Sockeye	962,682	76,850	60,804	29,830	1,130,166
Spring	340	19,985	940	2,430	23,695
Cohoe	8,955	7,113	2,694	8,744	27,506
Chums	2,088	625	.....	1,318	4,031
Humpback	16,187	21,519	2,402	10,650	50,758
Total	990,252	126,092	66,840	52,972	1,236,156

The total salmon pack of British Columbia for seven years past has been:

	Cases.
1895	566,395
1896	601,570
1897	1,015,477
1898	484,161
1899	732,437
1900	585,413
1901	1,236,156

The salmon pack of 1901 has been disposed of in the following manner:

	Cases.
Shipped to England	851, 826
Shipped to other places:	
Eastern Canada	131, 875
Australia	38, 022
Other destinations	13, 538
Local sales	19, 956
Stock on hand	180, 939
Total	384, 330
Grand total	1, 236, 156

ABRAHAM E. SMITH,
VICTORIA, *April 25, 1902.* *Consul.*

UNITED STATES ENTERPRISES IN ONTARIO.

The already large list of American concerns having branch establishments in Canada is constantly receiving additions. The American Wire and Steel Company has been incorporated in this country under the title of the Canadian Wire and Steel Company; it has arranged for temporary factory buildings at Hamilton, Ontario, and is now running three machines with a capacity of 35 tons daily.

H. R. Lamb, of Michigan, has just established a factory for woven-wire fencing at London, Ontario. The Port Huron Engine and Thresher Company, of Michigan, has located a branch factory at Sarnia, Ontario, and will employ $500,000 capital in the Canadian and export trade. The plant of the John Abell Threshing Machine and Agricultural Works, Toronto, has been purchased by the Advance Thresher Works, of Battle Creek, Mich. This establishment is said to be the largest of the kind in the Dominion, and has for years supplied many of the machines for Manitoba and the great wheat region of the Canadian northwest. The object of Americans in operating these factories is to avoid the duty, which is so high as to allow little profit on machinery when sent across the boundary line.

E. N. GUNSAULUS,
TORONTO, *May 3, 1902.* *Consul.*

BEET-SUGAR CULTIVATION IN ONTARIO.

The Ontario department of agriculture has arranged for extensive experiments in sugar-beet raising this season. These will be conducted at St. Catharines, Brussels, and Markham, and perhaps at Renfrew, Orangeville, and Guelph as well. About thirty farmers will raise beets at each point. This is the third successive year of sugar-beet experiments in Ontario. The results have been very satisfactory, and an effort is being made to ascertain if the soil is generally adapted for beet raising.

It is reported that the Ontario Beet-Sugar Company, with headquarters at Berlin, is taking an original way of securing acreage. The company is working in North Dumfries, particularly in the Dickie settlement. The farmer prepares the ground for the seed, but the company does the planting and all the rest of the work, including the thinning, cultivating, lifting, etc. For the use of the land, $10 an acre is paid. A good many contracts have been made; in some cases, for two or three years.

E. N. GUNSAULUS,

TORONTO, *May 1, 1902.* *Consul.*

CANADIAN DESIRE FOR TARIFF REVISION.

Manufacturers and merchants throughout these Provinces are becoming greatly dissatisfied with the present condition of the Canadian tariff, although factories are running in full blast and it seems that anyone who wishes to work can get employment. Wages, however, are hardly sufficient to meet the daily requirements, especially of a large family, as house rent, fuel, and oil are extremely high. The merchants, therefore, are more or less compelled to give long credits, which requires a large capital and causes considerable loss to the traders. This accounts for a good deal of the discontent of the merchants, and they say that it was a protective tariff that built up the United States industries, and that if Canada were given equally high rates this country would make similar strides.

Referring to the importation of $2,000,000 worth of agricultural implements from the United States during the past year, it is said that a duty of 50 per cent would save this $2,000,000 for Canadian manufacturers and workmen. They also say that the shipping industry should have the benefit of a higher protective tariff. Boards of trade of the leading cities and deputations of manufacturers from all over the country have taken up the matter of increasing the duty

on imported goods, and are sending resolutions to the Dominion Government requesting a revision of the present tariff.

Representatives of the shoe and boot industry recently waited upon the Dominion Government for the same purpose. It was argued that the Canadian shoe industry is being greatly interfered with by importations from the United States, which are on the increase. They requested an advance of the duty upon fine shoes imported, as the Canadian manufacturers, they said, have to pay high duties upon the leathers they import for this class of shoes, while the shoes are admitted at a figure which makes it impossible for them to compete with the American manufacturers. The Americans are also able to undersell those in Canada, because they manufacture for a market of 75,000,000 people, while the Canadian market is much more limited.

The importations for 1897 were $320,000; for 1898, $378,453; and for 1901, $647,790. For the current year, it is said, they will probably be about $900,000. The amount of capital invested in the manufacture of boots and shoes in Canada is approximately $4,500,000, while the industry gives employment to about 10,140 hands.

Deputations from the woolen and Portland-cement manufacturers have also had interviews with the Dominion Government. The woolen men say that unless the Government gives them assistance at once, it may mean a great loss to the trade. Last year, there were $10,000,000 worth of woolen goods imported into Canada, which has a population of a little over 5,000,000 people. This, they say, is naturally injurious to the interests of the Canadian manufacturer.

The Portland-cement delegations stated that over $4,000,000 are invested in the production of cement, and the industry gives employment to some 2,000 persons. The total capacity of the works in operation and under construction is about 1,100,000 barrels per year. They say that the American manufacturers, owing to their immense plants, can produce on a larger scale and more cheaply than the Canadians, and that they are making a slaughter market of Canada, in which operation they are aided by the freight rates on the other side of the line, which are lower per mile per car by from 50 to 75 per cent. This disadvantage would be, to some extent, counterbalanced by a readjustment of the duties. The tariff changes asked for, they say, will not enhance the price of cement in this country. Owing to the existence of natural deposits all over the country, anything in the form of a combine would be frustrated by the starting of new works. They also say that from thorough tests it has been found that the Canadian cement is the best in the world, and

that the output of the factories at present in operation or now being built would more than meet the demand.

The deputation was given an assurance that its views would receive due consideration.

I may add that business men in this consular district pronounce the present United States tariff an unfair discrimination and say that to protect their industries they are compelled to ask for reciprocity or a tariff equal to that of the United States.

Canada is a very good customer of the United States. The people like our goods better than those of any other country. Forty per cent of the goods handled by one of the largest hardware dealers in New Brunswick, with headquarters at Moncton, are of American manufacture. Every reasonable effort should, I think, be made to foster and expand this trade.

GUSTAVE BEUTELSPACHER,

MONCTON, *April 21, 1902.* *Commercial Agent.*

DECLINE OF UNITED STATES TRADE IN QUEBEC.

In response to a number of letters asking the cause of the decadence of American trade in certain lines here, I would submit the following.

This country has been slow in adopting the finer qualities of machinery, vehicles, and especially farming implements; but it is making progress in this direction, and the impression is general that the United States makes the best machinery. But dealers say that they are prevented from ordering from the United States by the high rate of duties here. From my observation, I believe that there is a decline in the sale of American goods, though perhaps this is not true of all parts of the Dominion. Dealers here are buying in the interior and west of Canada wagons, carriages, plows, and many farming implements, as well as pianos, etc. American sewing machines maintain their position in Canadian markets, as do some of the finer qualities of silver-plated wares.

American brass manufactures are sold here, because they are superior to any that can be manufactured in Canada. But one can not fail to be impressed, in going through the establishments here, with the scarcity of American goods. Besides the tariff, another great hindrance to our trade is the lack of energy in keeping it up. To do this, and to introduce anything new, requires the persistent and intelligent efforts of American "drummers."

GEORGE N. DALE,

COATICOOK, *May 5, 1902.* *Consul.*

NOTES.

Gold in Mozambique.—Consul W. S. Hollis transmits from Lourenço Marquez, March 25, 1902, clipping from a local paper giving further particulars in regard to the gold discoveries in Gazaland,* which reads, in part:

South Africa has often been described as the country of wonderful surprises. It had been thought that the biggest and the greatest of the later developments, at least in the southern portion of the continent, had happened on the Rand; but portions of Rhodesia are showing good results, and in other parts of South Africa we find rich indications.

But it is not only in the British portion of South Africa that gold-bearing soil has been discovered; in the extensive portion of the subcontinent comprised in the Portuguese province of Mozambique rich discoveries have been made. Recently, the Macequece gold fields have claimed a large share of attention on the part of the investing public, whose confidence bids fair to be justified. The fields in that direction promise the best results. Latest of all, we have the valuable find in the Uanetz district. Here, it has been ascertained, there exists the true "conglomerate" as we find it in the Witwatersrand soil. The reef, as we have been informed, is an extensive one, and has been traced for miles. Something like 7 miles have already been taken up. The district is situated fairly well to the north of Incomati, near to the Transvaal border. The district is healthy, and, from a mining point of view, there are the supreme advantages of an abundant water supply and an almost inexhaustible stock of timber. As for the financial element, we may state that the syndicate to further prospect and work the fields has been fully formed, and consists mainly of Lourenço Marquez gentlemen. Good financial support has been forthcoming, and ultimate success is confidently anticipated.

River Navigation in German East Africa.—Consul-General Richard Guenther, of Frankfort, under date of April 22, 1902, says that, according to German papers, the governor of German East Africa is giving considerable attention to the improvement of the water ways of that province and to the construction of steamers capable of ascending the slight rapids encountered in the streams emptying into the Indian Ocean. Already, a side-wheel steamer has temporarily been placed in operation on the Rufidjy River, from its mouth to Kungulio, while the upper reaches of that stream, known as the Manga, are being surveyed by the military station of Mahenge. Systematic surveys will also be made of the Wamis River, with a view to furnishing an outlet for the rich agricultural district of Kilossa and for the mining district of the Muguru Mountains.

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*See ADVANCE SHEETS No. 1319 (April 18, 1902).

Trade and Transport Association in France.—The following, dated May 16, 1902, has been received from Consul W. P. Atwell, of Roubaix:

The presidents of the Seine syndicates recently decided to organize an immense union, for the purpose of regulating the relations between manufacturers and transportation companies. This organization, known as the Mutual Transport Company, proposes to give to its members the cheapest transportation by rail, river, or sea. Twenty-five chambers of commerce, more than 100 syndicates, and 2,000 merchants and manufacturers have joined the association, which held its first congress on March 21 and 22. This reunion was presided over by the Minister of Public Works, assisted by the Minister of Commerce. Railway officials and 600 representatives of commerce and manufacture were present; and Mr. Heurteau, the director of the Orleans Company, declared that the railways would take into favorable consideration the requests of the union. The manufacturers of Roubaix have appointed a committee to study the question of transportation, in its relation to the the interests of this locality.

Prize Competition for Buildings at Nice.—Vice-Consul A. Piatti writes from Nice, May 12, 1902:

The municipality of Nice has offered annual prizes for the construction of buildings in this city, public and private. Their fronts, their interior plans, their construction and the excellence of the materials, their sanitary systems, and their gardens facing public streets are all to be considered in awarding the prizes.

The building industry of Nice is in its infancy, as to heating, ventilation, and sanitation. In some of the newest buildings, the arrangements are still of the most rudimentary kind. In one kitchen, the work is all of cement.

I would earnestly recommend our manufacturers of articles in this line to seek an opening here by doing a direct trade with this port, instead of depending upon middlemen. This consulate will receive all catalogues, etc., and distribute them where a probability of business exists.

Pension Fund at Stettin.—Consul J. E. Kehl writes from Stettin, April 21, 1902:

The Vulcan Shipbuilding Yards, of Stettin, have recently inaugurated a pension fund, the working basis of which may be of

interest to our large commercial concerns. In brief, the plan is as follows:

All employees of the "Vulcan" who receive an annual salary of more than 1,500 marks ($357) are eligible to membership. Every member pays an initiation fee equal to one month's salary, but not to exceed 500 marks ($119), after which he pays an annual premium equal to 3 per cent of his yearly salary. The highest basis upon which an initiation fee or premium can be paid is a yearly salary of 6,000 marks ($1,428). The Vulcan Company pays into the fund an amount equal to the annual premiums collected. Five years' membership, or the paying of back dues so as to make the amount equal to five annual premiums, entitles a member to a pension. The amount paid to an incapacitated or retired member amounts, after five years' service, to fifteen-sixtieths of his last year's salary and increases one-sixtieth every subsequent year of actual service until the limit of forty-five-sixtieths has been reached. The right to a pension is accorded to those permanently disabled through accident or sickness, or who have a forty-year membership or have reached the age of 65. The widow of a member is entitled to one-half of her husband's pension and every child of the deceased (under 18 years) to one-twentieth of the pension; but in no case shall the amount paid to widow and children exceed fifteen-twentieths of the amount of pension due the deceased husband and father. All officers of the fund, with the exception of the treasurer, furnish their services gratis.

Watches in the Netherlands.—Consul F. D. Hill writes from Amsterdam, April 22, 1902:

Most watches sold in this country are of Swiss make. American Waltham watches, even, are imported from Switzerland, where the American works are provided with Swiss cases. Only the more expensive watches are imported direct from the United States. Men's gold watches, 14 carat, open-faced and no hunting, at the wholesale price of 50 florins ($20), are most in demand here. For the higher priced ones, 18-carat gold is used, but watches which are worth more than 100 florins ($40) do not sell regularly, and those worth more than 300 florins ($120) never. Ladies' watches must not be more than 1⅛ inches in diameter, and the largest demand is for those costing 18 to 19 florins ($7.20 to $7.60), wholesale price. Filled-case watches are not in demand here. The import duty is 5 per cent ad valorem.

New Match in Sweden.—Under date of April 17, 1902, Consul R. S. S. Bergh writes from Gothenburg:

The Göteborgs Handles- och Sjöfarts-Tidning published yesterday an article which may be of interest. I quote it in translation:

Another kind of match, intended to supplant the phosphorous matches which have been prohibited for a year, has lately been introduced in the Swedish market. The inventors of the new match are the engineers Landin and Jernander, of Stockholm, who have patented their invention in several countries. This match looks like the well-known potash and paraffin matches, which, however, by reason of the

fact that they contain poisonous phosphorus, come under the same prohibition as the old and worthy lucifer match. But the new match, which has been named "repstickan" (the scratch match), possesses a property which the potash match lacks, viz, it is damp proof and can therefore be lighted against a damp or wet surface, provided this is hard. The inventors claim that repstickan is the least poisonous match in existence, the safety match not excepted.

The manufacture of the new matches, which at present is carried on for the inventors, has been intrusted to Lidköpings Tändsticksfabrik. It is said that negotiations are going on for the sale of the patent in other countries.

Belgian Experiments in Matches without Phosphorus.—Under date of May 5, 1902, Consul G. W. Roosevelt, of Brussels, writes:

In 1898, an international competition for a paste for matches not containing white sulphur was announced, and a prize of 50,000 francs ($9,650) was offered by the Belgian Government to the inventor. The commission appointed to judge results has now declared that, after four years of careful experiment and analysis, it has been found that none of the products so far submitted fill the required conditions, being defective in inflammability, igniting on all surfaces, or, in igniting, ejecting inflammable matter containing some poisonous substance. The sum already expended in the matter amounts to 8,178 francs ($1,578.35). This covers cost of printing, correspondence with foreign countries, purchase of material, analysis, and experiments.

New Type of Steamship in Denmark.—Consul J. C. Freeman writes from Copenhagen, May 1, 1902:

A company has been formed in this city for the construction of a trial steamship of a new type. The inventor is Capt. F. C. Ishoy, who has taken out patents in the principal countries. In this new form of steamer, the screw is placed under the bottom instead of aft. The hull is materially changed in form, being flatter, and the ship's draft thereby considerably lessened. It is claimed that a saving in the consumption of coal of about 20 per cent will be effected. The inventor believes that with the same amount of fuel the speed will be greatly increased, and, finally, that this form of craft will be much steadier and more seaworthy.

International Congress of Orientalists at Hamburg.—The Department has received from the German embassy, Washington, under date of May 10, 1902, notice that the thirteenth session of the International Congress of Orientalists will be held at Hamburg from September 4 to September 10, 1902. Copies of the programme are

inclosed. The first congress of this character met in Paris in 1873 and the last was held at Rome in 1899. The following subjects will be discussed: (1) Science of language, universal Indo-Germanic section; (2) Indian-Iran; (3) beyond India and Oceanica (Far East); (4) Central and East Asia; (5) universal Semitic section; (6) Mohammedan section; (7) Egyptian and African languages; (8) reciprocal action between the East and West (*a*) in antiquity, (*b*) in the Middle Ages, and (*c*) in modern times (including Byzantine studies); (9) section for colonial affairs.

New Russian Railways.—Consul-General W. R. Holloway, of St. Petersburg, under date of April 23, 1902, reports:

It is announced that the new Alexandropol-Erivan Railway will be completed about midsummer. This line is considered of importance, as it passes through a productive country, in which cotton, rice, and tea plantations are increasing. Its total length is 141 versts (93.5 miles) and it consists of two sections, the first running from the fortress center of Alexandropol to the frontier river of Arpatchai, and the second from the little village of Uluchany, on the same stream, to Erivan, thus connecting the three chief Caucasian fortresses of Kars, Alexandropol, and Erivan. On the completion of the new line, it is now definitely stated, the construction of the permanent way from Erivan to Djulfa, on the Persian frontier, will be immediately proceeded with.

Under date of May 9, 1902, Consul-General W. R. Holloway says:

Preliminary work has commenced on the Vladicaucasus Railroad along the Caucasian coast of the Black Sea. The line begins at Enem Station, on the Vladicaucasus road, and will run through Tuapse, Sotchi, Adler, Gagry, Suhum, to Novosinaki Station, on the Transcaucasian Railroad, which is to be extended to Maikop, and in the near future to Armavir. The length of the line will be 510 versts (338 miles), and its cost is estimated at 50,000,000 rubles ($25,750,000).

Pullman Cars in Kief.—Consul Samuel Smith reports from Moscow, May 2, 1902:

The City Electric Railroad Company, of Kief, has lately received two Pullman cars, which were ordered by the municipality as an experiment. The cars were shipped from Berlin in separate parts and are now being put together at the Kief City Railroad Works. They are of the double-truck type and have four electromotors of 25 horsepower each. The cars at present in use at Kief have two motors of 25 horsepower each. The new cars are equipped with all the latest improvements, including electric brakes and electric lights.

Harbor Works at Dalny and Port Arthur.—Consul H. B. Miller reports from Niuchwang, April 14, 1902:

The Shanghai Mercury of April 8, 1902, says that "the Russian Ministry of Marine has voted £600,000 ($2,917,000), to be expended during the present year on the construction and dredging of harbors in the Far East." This money is to be spent mostly in improvements at Dalny and Port Arthur. Orders have already been given to proceed with the construction of the second dry dock at Dalny, which is to be the largest on this side of the Pacific and able to accommodate the greatest vessel that floats. Out of this fund there is also to be constructed a large naval dry dock at Port Arthur, and extensive dredging is to be done to improve and enlarge the harbor, which is now too small to accommodate present vessels. Contractors are being asked to bid upon this work.

Exports of Butter from Siberia.—Under date of May 2, 1902, Consul Samuel Smith, of Moscow, says that, according to the Minister of Ways and Means of Communication, freight traffic on the Trans-Siberian Railway has grown immensely during the past few years. In 1899, the increase over the preceding year was 95.96 per cent; in 1900, 115.63 per cent, of which 62.13 per cent, or 38,435,904 pounds, was butter. In 1901, the shipments of butter had grown to 72,000,000 pounds, and, during the latter part of the summer, the railroad authorities were obliged to dispatch four special trains, each of twenty-five refrigerator cars, for the transportation of this product. The export of Siberian butter is increasing astonishingly. Formerly, butter was produced in western Siberia only as far as Omsk, but at present it can be obtained in the Tomsk and Irkutsk governments.

Customs Rulings at Vladivostock.—Commercial Agent R. T. Greener sends the following from Vladivostock, March 12, 1902:

The local customs give notice that when merchandise is exported from European Russia into the ports of the Maritime Province, and the excise duty is subject to a rebate (goods bearing excise seals, such as tobacco, pressed yeast, and matches, excepted), the European custom-houses will issue certificates that such goods are not free from excise duty. Such certificates will be presented to the custom-houses at Vladivostock and Nikolaefsk.

Recently, a car loaded with English drills (linen goods) was seized on the Ussuri Railroad. The goods were from Port Arthur, and there were other goods on which customs duties are charged at

Vladivostock. Contraband goods enter easily through Pogranitchna station, and may be found throughout the Ussurisk district. Sugar at Vladivostock costs 8 rubles a pood ($4.12 per 36 pounds); at Nikolaefsk, what is termed "Manchurian Railway sugar" costs 5.50 rubles ($2.83) a pood.

Freight Rates on Chinese Tea.—The following, dated May 2, 1902, has been received from Consul Samuel Smith, of Moscow:

Russian tea merchants have been informed by their commissioners in China that the black tea of this year's crop can be shipped this summer by rail from Dalny to Irkutsk, and that the cost of transportation will not exceed 2 rubles per pood ($1 per 36 pounds). Up to the present, about 400,000 cases of tea have been shipped daily by caravans from Tientsin, Kalgan, Urga, and Kiachta to Irkutsk, at a cost more than double the above. In view of the competition of the railway, the Mongolians have recently reduced their rates one-half.

It is expected that, as a result of the cheaper transportation, the selling price of caravan tea at the Nizhni fair will also be reduced this year.

Chinese Eastern Railroad Rates.—Consul-General W. R. Holloway, of St. Petersburg, informs the Department, April 23, 1902, that second-class tickets are now being sold by the Chinese Eastern Railroad Company. The first and third class fares are:

From Vladivostock to—	First class.		Third class.	
	Rubles.		*Rubles.*	
Shanghai	72	$37.08	25	$12.88
Port Arthur	85	43.77	27	13.90
Chefoo	85	43.77	27	13.90
Foozan	33	17.00	11	5.67

Manchurian Merchants in Russia.—Commercial Agent R. T. Greener reports from Vladivostock, April 1, 1902:

The Russian merchants are endeavoring to capture the trade of Manchuria, hitherto largely controlled by the British. The import of British goods—mainly cottons—into Manchuria through Inkow amounts to a large sum yearly. The assistant director of the Inkow customs, Mr. Sorokin, and several local Chinese merchants recently went to Moscow and Lodz, Poland, in the effort to open up trade with Russian manufacturers.

Prussian Method of Briquette Making.—Under date of April 18, 1902, Consul-General O. J. D. Hughes reports from Coburg:

Many inquiries have been received here for information in regard to coal briquettes and methods of manufacture thereof. I have just learned the method employed by a leading manufacturer in East Prussia; he is said to employ a thin dilution of starch as the binding substance. The resulting paste, after being subjected to boiling for a short time, is filled into molds without any great pressure, the briquettes being dried slowly at a moderate heat.

Duties in the Canary Islands.—Under date of April 24, 1902, Consul S. Berliner, of Teneriffe, says:

The syndicate* which received the concession to collect customs duties here has been compelled to give it up, forfeiting the 500,000-peseta (about $70,000) guaranty. The concession has been granted to another syndicate, composed of the former company and of the principal merchants of the Canary Islands, each party having a half interest. Under the new contract with the Government, the price to be paid is 1,002,000 pesetas (about $140,000) per year, and the concession is for five years. It is proposed to reduce the duties on several articles which at present pay a very high rate, thereby increasing the importation.

Hours of Labor in the Canary Islands.—Consul S. Berliner writes from Teneriffe, April 14, 1902, that a recent decree of the Minister of Finance establishes an eight-hour day for all workmen employed on the State domains and in Government mines and manufactories. Whenever these men are called upon to work longer than eight hours, they will be granted overtime pay, the rate for every extra hour being equivalent to one-eighth of their regular pay for the day.

German Trade with Mexico.—The following translation from the Berlin Suedamerikanische Rundschau has been received from Consular Clerk G. H. Murphy, of Frankfort, under date of May 6, 1902:

Although, during the past fiscal year, Germany's trade with Mexico increased 6½ per cent, it was nevertheless far exceeded by that of the United States. In Germany, too little attention has apparently been paid to Mexico. It will consequently be their own fault if the Germans continue to lose ground owing to American competition. The number of American banks and trust companies in Mexico is rapidly increasing, while until very recently there was no German bank there. It is, however, believed that the establishment a short time ago of a branch of the German Transmarine Bank in the City of Mexico will prove advantageous to German trade.

*ADVANCE SHEETS No. 774; CONSULAR REPORTS No. 240.

Proposed Railway from Tampico to City of Mexico.—Under date of April 24, 1902, Consul S. E. Magill writes from Tampico:

The citizens of Tampico have long hoped for direct railway connection with the City of Mexico, and it now seems likely that this desire will soon be realized. The Mexican Central Railway Company, after a number of careful surveys, has selected a route that is only 60 kilometers (37 miles) longer than the shortest line from Veracruz to the capital. The work of construction will be begun within sixty days and rapidly pushed to completion. This road means much for Tampico in its rivalry with Veracruz for commercial supremacy. Tampico now leads in the combined value of the exports and imports, in the tonnage of imports, the vessel tonnage, and in the value of the exports. Veracruz, on the other hand, holds first place in the value of the imports and in the amount of duty collected. With a direct route to the City of Mexico of less than half the length of the present line, Tampico would, no doubt, capture a considerable amount of the imports now shipped via Veracruz.

Coffee Crop of Nicaragua.—Consul C. Donaldson reports from Managua, March 25, 1902, that the crop of coffee now nearly gathered is the largest ever produced in Nicaragua. The greatest increase has been made in the Department of Matagalpa, where many planters from the United States have recently settled, whose young plantations are just beginning to bear a full crop. It is calculated that they will have about 50,000 sacks, which is over double the production of last year in that Department. The older plantations in the Department of Managua, Carazo, and Granada, adds the consul, are also giving a large crop, and it is estimated that altogether the whole country will produce about 300,000 sacks, equal to 30,000,000 pounds, valued at about $3,000,000.

Commercial-Traveler Tax in Jamaica.—Commercial Agent N. R. Snyder, of Port Antonio, under date of May 27, 1902, reports that an act abolishing the tax of £22 10s. ($109.49) on commercial travelers dealing in spirits and of £12 10s ($60.90) on those not dealing in spirits was passed in the last session of the legislative council, and received the assent of the governor. During the existence of this law, adds Mr. Snyder, many salesmen arrived in the island intending to transact business, but, owing to what they considered an excessive tax for a stay of a week or fortnight, they left without selling any of their wares.

Alleged Shipments of Rice to the Danish West Indies.—Consul H. W. Diederich writes from Bremen, May 17, 1902:

Having been informed that our people interested in the rice business in the United States fear that large quantities of this product were being shipped to the Danish West Indies from here, to be brought into our country free of duty, when the purchase of those islands by our Government shall have become an accomplished fact, I have investigated the situation and have become satisfied that not one ounce of rice has gone from Bremen (one of the leading rice markets of the world) to the islands since January 1, 1900.

Port Dues at Curaçao.—Consul E. H. Cheney reports from Curaçao, April 25, 1902, that by an ordinance of the Government issued April 16, 1902, coal-laden vessels entering the harbor of Curaçao are exempt from tonnage and light dues. It may be proper to add in this connection, says Mr. Cheney, that whereas formerly nearly all the coal used here came from Cardiff, only a single cargo of Cardiff coal has arrived in the last two years, all the rest being American.

Map of Peru at Buffalo.—The Department has received a note from the Peruvian legation, Washington, under date of May 24, 1902, reading, in substance:

There was exhibited in the Peruvian section of the Buffalo exposition a map of Peru which contains material errors, due, no doubt, to the fact that the commissioner was not a Peruvian. The map is not official, and, in order to prevent its defects from leading persons into error, it is desired that this information be imparted to the geographical and commercial institutions of the United States which may have an interest in the matter.

German Shipping in Australia and America.—Under date of May 6, 1902, Consular Clerk G. H. Murphy transmits the following newspaper clipping (translated) from Frankfort:

Hamburg's shipping trade with Australia doubled in 1901. The registered tonnage of vessels arriving at Hamburg in 1900 from Australia and adjacent islands was 72,000, while in 1901 it was 141,000. During the same period, the tonnage of vessels entering the port of Hamburg from the western coast of America increased from 335,000 to 457,000.

Steamship Service to New Caledonia.—Commercial Agent G. M. Colvocoresses reports from Nouméa, March 10, 1902, that in a recent interview with a representative of the Oceanic Steamship Company, he was informed that it is probable that this line will

change its route in the course of twelve months, stopping at Nouméa en route to and from Sydney, instead of at Auckland, New Zealand, as at present. Negotiations are now in progress with the Government of New Caledonia to effect this change. Mr. Colvocoresses adds that it would be advantageous to American commerce, as many goods now imported from Australia, England, and France could then be brought from the United States at a greatly reduced cost.

American Commercial Library in Siam.—Consul-General Hamilton King, of Bangkok, informs the Department, April 5, 1902, that in view of the many inquiries received in regard to commercial matters, a library of American business catalogues, trade journals, and periodicals has been established at the United State consulate-general in that city, and that a standing advertisement to that effect appears in all the local papers. The consul-general would be pleased to receive, for use of the library, catalogues and other publications pertaining to American trade.

Combination of British Columbian Salmon Canneries.—Consul L. E. Dudley, of Vancouver, reports, under date of May 19, 1902, that the salmon canneries of British Columbia have combined and will extend business in several directions. The combination is said to be capitalized at $3,000,000. Heretofore, says the consul, the by-products of the canneries have been almost entirely wasted, but it is now proposed not only to save the oil, but also to manufacture guano and glue. The combination will undertake to develop the entire fishing industry of that region. Shipments of fresh halibut will be made, and efforts will be put forth to meet the demand for salted and smoked fish in the Orient, Europe, and the United States. The consul adds that it is understood that a considerable portion of the capital of the new organization came from the United States.

Lead Bounties Urged in British Columbia.—Consul L. E. Dudley writes from Vancouver, May 12, 1902, that resolutions recently adopted by the Rossland Board of Trade urge the Canadian Government to grant a bounty of $10 per ton for the first year on the product of a lead refinery; also an increase of the duties on pig lead, white lead, red lead, and other manufactures of lead. Boards of trade in other towns and cities in the lead-producing district have adopted similar resolutions.

Demand for Automatic Fillers in Toronto.—Under date of May 6, 1902, Consul E. N. Gunsaulus, of Toronto, writes:

I am in receipt of an inquiry from the Grant-Hamilton Oil Company, Limited, of this city, for information relative to the names of manufacturers of automatic fillers, suitable for oils and other liquids; that is, a filling apparatus which shuts automatically when the package is full. The firm will be pleased to receive any information from makers of or dealers in such an appliance.

Coinage of Silver in Venezuela.—Consul E. H. Plumacher writes from Maracaibo, April 16, 1902, that a recent decree issued by the President of Venezuela orders the coining of 2,000,000 bolivars ($386,000) in silver money, three-fourths of this to be in 5-bolivar (96 cents) pieces and the rest in 2-bolivar (38 cents) pieces.

Guatemalan Tax on Coffee Exports.—Consul-General J. C. McNally transmits from Guatemala, May 16, 1902, translation of a decreé extending for one year more the tax of 6 pesos* ($2.42) on each quintal (220 pounds) of coffee exported from the Republic.

Consular Reports Transmitted to Other Departments.—The following reports from consular officers (originals or copies) have been transmitted since the date of the last report to other Departments for publication or for other action thereon:

Consular officer reporting.	Date.	Subject.	Department to which referred.
E. Schneegans, Saigon	Mar. 30, 1902	Condition of rice market	Department of Agriculture.
Do	Apr. 11, 1902	do	Do.
Do	Apr. 24, 1902	do	Do.
F. D. Hill, Amsterdam	May 5, 1902	Emigration	Bureau of Immigration.
F. W. Jackson, Patras	Apr. 26, 1902	do	Do.
J. L. Bittinger, Montreal	May 17, 1902	Strikes in Canada	Department of Labor.
A. W. Swalm, Montevideo	Apr. 23, 1902	Schools	Bureau of Education.
J. F. Winter, Annaberg	May 5, 1902	Public schools	Do.
M. H. Twitchell, Kingston	do	Crop conditions in Canada	Department of Agriculture.
H. W. Diederich, Bremen	May 12, 1902	Emigration	Bureau of Immigration.
W. T. Griffin, Limoges	May 21, 1902	Strikes	Department of Labor.
J. E. Hamilton, Cornwall	June 6, 1902	Crop conditions	Department of Agriculture.
J. E. Kehl, Stettin	May 28, 1902	Education in Germany	Bureau of Education.
S. W. Hanauer, Frankfort	May 24, 1902	Trusts	Department of Justice.
E. T. Liefeld, Freiburg	May 21, 1902	Fruit trees	Department of Agriculture.

*The United States Mint valuation of the Central American peso, April 1, 1902, was 40.3 cents.

FOREIGN REPORTS AND PUBLICATIONS.

Trade of the Somali Coast.—The following particulars regarding the coast of the Migiurtini, or northern Somali, are taken from a report of the Italian consul-general in Zanzibar, published in a recent edition of the Bollettino degli Affari Esteri, of Rome:

There are thirty-one ports, or inhabited points, on the northern Somali coast. The most important of these, commercially speaking, is Bandar Cassem, 272 miles distant by sea from Aden. Caravans are sent from here to the interior, supplying the tribes of the upper valleys of the Darror and Nogel; while by sea trade is carried on by means of vessels sailing to Aden and the opposite coast of Arabia. In appearance, Bandar Cassem is not as attractive as some other points, the distant hills of limestone, which form the background, being dry and barren. A scanty line of vegetation—the green of the thorny acacias— visible in the west, marks the bed of a torrent; a branch of this stream finds its way to the village, and it is probably due to filtrations from it that the subsoil is here so rich in water—everywhere, by digging 12 or 15 feet, potable water is found—while at many of the other ports the natives are obliged to go long distances for water. The village has a population of about 800. The anchorage, which is open for large vessels, is not good; especially at certain periods of the year, when the monsoon from the northeast blows, the operations of lading and unlading are very difficult. A reef, parallel with the shore, about 800 yards long, forms a channel which serves as a cover for native sailing vessels.

The products of the region consist of gum, incense, myrrh, skins, native butter, cattle (beef and sheep), and camels. It is difficult to specify the quantities; but the exports are estimated approximately at 80,000 skins of sheep and goats, 45,000 pounds of native butter, 1,000 sacks of gum (a sack contains about 136 pounds), and 8,000 sacks of incense.

Gum is produced throughout the whole territory, and is of four qualities; the period of gathering is in June, July, and August. The first quality of gum is the whitest and best, but it is often adulterated with gum of the second quality. The third and fourth qualities are more or less inferior, but quite distinct. The total production is estimated at 20,000 sacks, which, valued at the minimum price in Aden, gives 720,000 lire ($138,960). Incense—called by the Arabs and natives luban—is of two qualities. Luban proper, the ordinary quality, is the incense used for burning. The other quality, called maida, is finer and whiter. The production is much more limited, and it commands at Aden double the price of luban. This quality is prized throughout the Orient for mastication, and also serves for various uses in industries. It is gathered during the cool season, from January to April. Luban, on the contrary, is gathered in summer, during the months of June, July, and August, and the more the hot south wind blows the better and more abundant is the harvest. The total production of incense is estimated at 33,000 sacks, valued at 594,000 lire ($114,642).

Mother-of-pearl and ambergris also figure among the articles of export; and dried and salted fish. The total value of the commerce of exportation would probably amount to 1,714,000 lire ($330,800).

The imports into this country are limited to articles of prime necessity, such as rice, dates, and cotton cloths, coming from Aden, Bombay, and Zanzibar; and

it should be borne in mind that trade in all this region is a matter of exchange. Up to the present time, there has been no duty or impost of any kind. The Arabs, who taught the Somali people the method of making the palm fruitful, are authorized to cut timber for their boats. The southern part of the country is inhabited by pastoral tribes, who have many horses and camels. They, however, keep their flocks as far as possible from the forests of gum and incense bearing trees, which constitute the greatest wealth of the country. These trees vary in height from 18 to 36 feet, growing wild not only on the mountains, but in the valleys.

Import Trade of the Transvaal in 1901.—The Board of Trade Journal, London, March 27, 1902, publishes the following table, showing the value of the imports into the Transvaal in 1901:

Article.	Value.	Article.	Value.
Apparel, haberdashery, etc	$3,956,465	Wood and manufactures of (furniture)	$238,459
Metal and manufactures of (includes agricultural implements, bicycles, hardware, ironmongery, machinery)	1,678,943	Tobacco, raw and manufactured	330,922
		Live animals	82,731
		Cotton manufactures	588,847
Provisions (exclusive of corn and dairy products)	3,036,696	Woolen manufactures	369,854
		Soap and candles	437,985
Corn and grain (includes flour, meal, and rice)	1,304,222	Stationery (includes books and printed matter)	184,927
Dairy products (butter and margarin, eggs, cheese, milk, and ghee)	1,202,026	Oils of all kinds (includes paints)	204,393
		Groceries and oilmen's stores	535,315
Leather and manufactures of (saddlery and boots and shoes)	1,352,887	Jewelry and plated ware	248,192
		Other	1,167,960
Beverages (ales, spirits, wine, and mineral waters)	564,514	Total	17,880,525
Drugs and chemicals	394,187		

The source of the imports is shown by the following:

From South Africa:	
Natal	$6,360,512
Cape Colony	2,837,170
Orange River Colony	14,600
Delagoa Bay	598,580
Total from South Africa	9,810,862
From Europe:	
Via Natal	3,479,548
Via Cape Colony	3,679,074
Via Delagoa Bay	389,320
Total from Europe	7,547,942
From other countries:	
Via Natal	282,506
Via Cape Colony	190,550
Via Delagoa Bay	48,665
Total from other countries	521,721
Grand total	17,880,525

These figures are exclusive of specie and do not include free importations for the use of field-force canteen and officers' messes, burgher relief committee, local government or military stores, or railway material imported as public stores. The amount of customs duties collected during the year 1901 was $2,435,414.74.

Mineral Resources of Tasmania.—The Board of Trade Journal, London, April 24, 1902, has the following:

Minerals represent 70 per cent of the total value of the exports. This, however, is stated to be only an infinitesimal fraction of the wealth in minerals yet to be developed. There are in the west numerous other deposits of great size and value in copper, silver, lead, zinc, and gold. Tin is found in considerable quantities, both on the west and on the east side of the island. In some places, iron ore exists in great abundance; hematite of a very pure kind is found at Ilfracombe, near the River Tamar; and at the Blythe River, on the northwest coast, are immense quantities of iron ore. The Government geologist, in a report dated January 30, 1901, estimated the supply above the river level as about 23,000,000 tons. The quality is very superior and admirably fitted for producing the highest and best brands of iron and steel. The hematite ranks with the famous Spanish, Algerian, and Cuban ores, which are now exported in very large quantities to the United Kingdom, United States, France, and Germany for the manufacture of Bessemer steel. Coal more or less suitable for all purposes is found in many parts of the island, though it has not yet been worked to any large extent. At Maria Island, distant about 6 miles from the east coast, there are great quantities of limestone suitable for the manufacture of cement. The harbor of Hobart is one of the finest in the world. There is room in it for an unlimited number of vessels, and there are no rocks or shoals in the approaches to it. The largest ships can lie alongside the wharves.

Railways of Tunis.—La Quinzaine Coloniale, Paris, April 25, 1902, says:

The protectorate of Tunis has been authorized by the French Parliament to make a loan of 40,000,000 francs ($7,720,000) for the purpose of completing its network of railways. The lines include the following:

(1) An extension from Tunis to the bridge of the Fahs, to Kef and to Kalaates-Senam.

(2) A line from Kasrouan to Sbiba.

(3) A line from Bizerta to the Nefza.

(4) The union through the Sahel of the network of the northern part of the regency with the line from Sfax to Gafsa.

This means the construction of more than 1,000 kilometers (621.4 miles) of railway, in addition to the 933 kilometers (580 miles) now being worked. By the convention recently signed and approved, the Tunisian budget assumes the charge of the guaranty of interest granted for the first railways. For this, Tunis will receive an annual subsidy from France, commencing with 2,000,000 francs ($386,000). After 1906, it will decrease 31,000 francs ($5,986) a year up to 1966. It is hoped that the first line in the programme adopted will pay expenses as soon as it is in

working order. An agreement between France and the government of the bey provides for the construction, in a short time, of a line from Mateur to Béja, destined to put Bizerta into direct communication with the valley of the Medjerda and Algeria. This is considered a strategic line. It will divert to the port of Bizerta a fraction of the merchandise that the line of the Medjerda now carries to Tunis.

Trade of Norway in 1901.—The Nachrichten für Handel und Industrie, April 30, 1902, gives the following statistics regarding the foreign trade of Norway in 1901:

The imports were valued at $77,308,084 and the exports at $41,983,808. The following tables show the distribution of this trade:

Imports.

Article.	Value.	Article.	Value.
Butter	$119,528	Brandy and liquors	$622,028
Artificial butter	13,936	Wine	913,344
Cheese	109,612	Cotton	620,688
Rye	5,354,104	Hemp	544,576
Barley	2,217,164	Petroleum	1,039,840
Malt	289,440	Wool and woolen goods	2,008,124
Rice, hulled	132,928	Salt	497,676
Tea	60,568	Coal and coke	7,263,068
Coffee	3,043,676	Machinery and locomotives	1,464,620
Sugar	2,710,552	Other articles	47,390,904
Sirup	377,880	Total	77,308,084
Tobacco, in leaves	514,828		

Exports.

Article.	Value.	Article.	Value.
Fish, dried and other	$8,499,620	Cellulose	$3,203,940
Butter	701,892	Matches	223,244
Artificial butter	316,776	Pyrites	362,872
Roe	549,936	Other articles	13,063,928
Train oil	1,771,480	Total	41,983,808
Fish guano	133,732		
Wood and products of	13,156,388		

Commercial Conditions in Roumania.—The Revue du Commerce Extérieur, Paris, April 5, 1902, says:

There is in eastern Europe a country, little known in France, in which Germany has been able to increase her trade to extraordinary proportions. This country is Roumania. The French language is understood there better than anywhere else; the French system of weights and measures is used and our customs and manners govern the social and economic life. Bucharest, the capital, is a miniature Paris. It is easily accessible by sea; its ports are frequented by the vessels of the Marseilles steamship lines; and yet, in spite of all these facilities, French commerce is losing ground. Germany, with no other advantage than the knowledge of the commercial language of a part of the inhabitants and more rapid and simpler

means of transportation by land, has created for herself, at the expense of Austria, a market large enough to receive annually 100,000,000 francs ($19,300,000) of her goods.

The Chamber of Commerce of Jassy, the second city in importance of Roumania, has appealed to the Roumanian Minister of Commerce for the establishment of high duties in favor of the branches of industry which transform native raw products, and moderate protection for industries forced to obtain their raw materials from foreign countries, when they are not produced in the country. The same body urges a reduction of freight rates on products exported, legislation against trusts, and the creation of an industrial bank to aid in the exploitation of the natural wealth of the country.

Almonds and Walnuts in the Canary Islands.—From the Nachrichten für Handel und Industrie, Berlin, April 16, 1902, the following is taken:

The Canary Islands export annually almonds and other nuts to the value of from $57,900 to $77,200. They are of ordinary quality and are sent principally to London, Hamburg, and New York. The firms engaged in the export of almonds are: Elder Dempster & Co.; Swanton & Co.; Miller & Co.; J. Rodriguez & Sons and Gonzales, in Las Palmas; Brothers Hardisson, in Santa Cruz de Tenerife. The walnut harvest is abundant in the islands. The firms which are particularly occupied with the walnut trade are: Don Manuel Acosta, in Teror (Grand Canary); Manuel Torreo-Suarez; and Fernando Gonzales, in Las Palmas. The price sometimes reaches $1.93 per arroba (25 pounds).

Commerce of Portugal in 1901.—According to the Boletim Commercial e Maritimo, Lisbon, the value of the import trade of Portugal in 1901 was $62,497,440, against $64,501,920 in the preceding year. The export trade was $30,545,640, compared with $33,404,400 in 1900. The following table gives details of the traffic:

Article.	Imports.		Exports.	
	1900.	1901.	1900.	1901.
Live animals	$3,058,560	$3,615,840	$4,153,680	$3,647,160
Raw and half-manufactured goods	29,590,920	28,045,440	6,265,080	6,603,120
Textiles and yarn	7,036,200	6,975,720	2,745,360	1,439,640
Food products	16,597,440	13,065,480	17,677,440	16,722,720
Machinery, tools, etc	3,804,840	4,990,680	167,400	117,720
Other	4,413,960	4,904,280	2,395,440	2,205,280
Total	64,501,920	62,497,440	33,404,400	30,545,640

The most important articles of the import trade were:

Coal	$5, 503, 680
Machinery and tools	4, 990, 680
Raw cotton	4, 163, 400
Cotton goods and yarn	3, 303, 640

Codfish and stockfish	$3,724,920
Wheat	3,396,600
Sugar	2,492,640
Iron and manufactures of	1,420,200

The exports in 1901 were:

Port wine	$5,951,880
Ordinary red wine	3,372,840
Madeira wine	810,000
Cork	3,538,080
Copper ore	1,332,720
Canned sardines	1,246,320
Olive oil	545,400
Dried figs	335,880
Live animals	3,647,160

Chrysanthemum and Rosemary Essences in Dalmatia.—The Nachrichten für Handel und Industrie, Berlin, April 15, 1902, says:

There were exported from Spalato and its vicinity, in 1901, 654,766 pounds of chrysanthemum essence, of which 127,867 pounds went to Germany and the rest to Trieste, Vienna, and France. The price of the inferior quality was from $32.48 to $36.54 per centner (220 pounds). The best quality brings $40.60 to $44.66 per centner. Rosemary essence is produced principally on the Island of Lesina. The export amounted to 266,313 pounds last year, of which 3,567 pounds were sent to Germany, the remainder being sold on the market at Trieste. The price of rosemary essence varied between $60.90 and $73.08 per centner. There were also exported 41,887 pounds of rosemary leaves, from which the essence is extracted, of which 19,841 pounds were sent to Germany and the rest sold at Trieste.

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PUBLICATIONS OF THE BUREAU OF FOREIGN COMMERCE.*

The publications of the Bureau of Foreign Commerce, Department of State, are:

I.—COMMERCIAL RELATIONS, being the annual reports of consular officers on the commerce, industries, navigation, etc., of their districts.

II.—CONSULAR REPORTS, issued monthly, and containing miscellaneous reports from diplomatic and consular officers.

III.—ADVANCE SHEETS, CONSULAR REPORTS, issued daily, except Sundays and legal holidays, for the convenience of the newspaper press, commercial and manufacturing organizations, etc.

IV.—EXPORTS DECLARED FOR THE UNITED STATES, issued quarterly, and containing the declared values of exports from the various consular districts to the United States for the preceding three months. There is also issued an annual edition of Declared Exports, embracing the returns for the fiscal year.

V.—SPECIAL CONSULAR REPORTS, containing series of reports from consular officers on particular subjects, made in pursuance to instructions from the Department.

Following are the special publications issued by the Bureau prior to 1890:

Labor in Europe, 1878, one volume; Labor in Foreign Countries, 1884, three volumes; Commerce of the World and the Share of the United States Therein, 1879; Commerce of the World and the Share of the United States Therein, 1880–81; Declared Exports for the United States, First and Second Quarters, 1883; Declared Exports for the United States, Third and Fourth Quarters, 1883; Cholera in Europe in 1884, 1885; Trade Guilds of Europe, 1885; The Licorice Plant, 1885; Forestry in Europe, 1887; Emigration and Immigration, 1885–86 (a portion of this work was published as CONSULAR REPORTS No. 76, for the month of April, 1887); Rice Pounding in Europe, 1887; Sugar of Milk, 1887; Wool Scouring in Belgium, 1887; Cattle and Dairy Farming in Foreign Countries, 1888 (issued first in one volume, afterwards in two volumes); Technical Education in Europe, 1888; Tariffs of Central America and the British West Indies, 1890.

The editions of all these publications except Tariffs in Central America, etc., are exhausted and the Department is, therefore, unable to supply copies.

In 1890, the Department decided to publish reports on special subjects in separate form, to be entitled SPECIAL CONSULAR REPORTS. There are now the following SPECIAL CONSULAR REPORTS:

Vol. 1 (1890).—Cotton Textiles in Foreign Countries, Files in Spanish America, Carpet Manufacture in Foreign Countries, Malt and Beer in Spanish America, and Fruit Culture in Foreign Countries.

Vol. 2 (1890 and 1891).—Refrigerators and Food Preservation in Foreign Countries, European Emigration, Olive Culture in the Alpes Maritimes, and Beet-Sugar Industry and Flax Cultivation in Foreign Countries.

Vol. 3 (1891).—Streets and Highways in Foreign Countries. (New edition, 1897.)

Vol. 4 (1891).—Port Regulations in Foreign Countries.

Vol. 5 (1891).—Canals and Irrigation in Foreign Countries. (New edition, 1898.)

Vol. 6 (1891 and 1892).—Coal and Coal Consumption in Spanish America, Gas in Foreign Countries, and India Rubber.

Vol. 7 (1892).—The Stave Trade in Foreign Countries and Tariffs of Foreign Countries.

Vol. 8 (1892).—Fire and Building Regulations in Foreign Countries.

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* Formerly Bureau of Statistics. Name changed to Bureau of Foreign Commerce by order of the Secretary of State, July 1, 1897.

Vol. 9 (1892 and 1893).—Australian Sheep and Wool and Vagrancy and Public Charities in Foreign Countries.

Vol. 10 (1894).—Lead and Zinc Mining in Foreign Countries and Extension of Markets for American Flour. (New edition, 1897.)

Vol. 11 (1894). -American Lumber in Foreign Markets. (New edition, 1897.)

Vol. 12 (1895).—Highways of Commerce. (New edition, 1899.)

Vol. 13 (1896 and 1897).- Money and Prices in Foreign Countries.

Vol. 14 (1898). -The Drug Trade in Foreign Countries.

Vol. 15 (1898).- Part I. Soap Trade in Foreign Countries; Screws, Nuts, and Bolts in Foreign Countries; Argols in Europe, Rabbits and Rabbit Furs in Europe, and Cultivation of Ramie in Foreign Countries. Part II. Sericulture and Silk Reeling and Cultivation of the English Walnut.

Vol. 16 (1899).- Tariffs of Foreign Countries. Part I. Europe. Part II. America. Part III. Asia, Africa, Australasia, and Polynesia. Supplement (1900). Tariffs of Chile and Nicaragua.

Vol. 17 (1899). - Disposal of Sewage and Garbage in Foreign Countries; Foreign Trade in Coal Tar and By-Products.

Vol. 18 (1900). Merchant Marine of Foreign Countries.

Vol. 19 (1900).—Paper in Foreign Countries; Uses of Wood Pulp.

Vol. 20 (1900). Part I. Book Cloth in Foreign Countries, Market for Ready-Made Clothing in Latin America, Foreign Imports of American Tobacco, and Cigar and Cigarette Industry in Latin America. Part II. School Gardens in Europe. Part III. The Stave Trade in Foreign Countries.

Vol. 21 (1900).- Part I. Foreign Markets for American Coal. Part II. Vehicle Industry in Europe. Part III. Trusts and Trade Combinations in Europe.

Vol. 22 (1900 and 1901).—Part I. Acetic Acid in Foreign Countries. Part II. Mineral-Water Industry. Part III. Foreign Trade in Heating and Cooking Stoves.

Vol. 23 (1901).—Part I. Gas and Oil Engines in Foreign Countries.

Of these SPECIAL CONSULAR REPORTS, Australian Sheep and Wool, Cotton Textiles in Foreign Countries, Files in Spanish America, Fire and Building Regulations, Fruit Culture, Gas in Foreign Countries, India Rubber, Lead and Zinc Mining, Malt and Beer in Spanish America, Port Regulations, Refrigerators and Food Preservation; Sericulture, etc.; Vagrancy, etc., are exhausted, and no copies can be supplied by the Department.

There was also published, in 1899, Proclamations and Decrees during the War with Spain, comprising neutrality circulars issued by foreign countries, proclamations by the President, orders of the War and Navy Departments, and war decrees of Spain.

Of the monthly CONSULAR REPORTS, many numbers are exhausted or so reduced that the Department is unable to accede to requests for copies. Of the publications of the Bureau available for distribution, copies are mailed to applicants without charge. In view of the scarcity of certain numbers, the Bureau will be grateful for the return of any copies of the monthly or special reports which recipients do not care to retain. Upon notification of willingness to return such copies, the Department will forward franking labels to be used in lieu of postage in the United States, Canada, the Hawaiian Islands, Porto Rico, and Mexico.

Persons receiving CONSULAR REPORTS regularly, who change their addresses, should give the old as well as the new address in notifying the Bureau of the fact.

In order to prevent confusion with other Department bureaus, all communications relating to consular reports should be carefully addressed, "Chief, Bureau of Foreign Commerce, Department of State, Washington, U. S. A."

VALUES OF FOREIGN COINS AND CURRENCIES.

The following statements show the valuation of foreign coins, as given by the Director of the United States Mint and published by the Secretary of the Treasury, in compliance with the first section of the act of March 3, 1873, viz: "That the value of foreign coins, as expressed in the money of account of the United States, shall be that of the pure metal of such coin of standard value," and that "the value of the standard coins in circulation of the varlous nations of the world shall be estimated annually by the Director of the Mint, and be proclaimed on the 1st day of January by the Secretary of the Treasury."

In compliance with the foregoing provisions of law, annual statements were issued by the Treasury Department, beginning with that issued on January 1, 1874, and ending with that issued on January 1, 1890. Since that date, in compliance with the act of October 1, 1890, these valuation statements have been issued quarterly, beginning with the statement issued on January 1, 1891.

The fact that the market exchange value of foreign coins differs in many instances from that given by the United States Treasury has been repeatedly called to the attention of the Bureau of Foreign Commerce. An explanation of the basis of the quarterly valuations was asked from the United States Director of the Mint, and under date of February 7, 1898, Mr. R. E. Preston made the following statement:

"When a country has the single gold standard, the value of its standard coins is estimated to be that of the number of grains fine of gold in them, 480 grains being reckoned equivalent to $20.67 in United States gold, and a smaller number of grains in proportion. When a country has the double standard, but keeps its full legal-tender silver coins at par with gold, the coins of both gold and silver are calculated on the basis of the gold value.

"The value of the standard coins of countries with the single silver standard is calculated to be that of the average market value of the pure metal they contained during the three months preceding the date of the proclamation of their value in United States gold by the Secretary of the Treasury. The value of the gold coins of silver-standard countries is calculated at that of the pure gold they contain, just as if they had the single gold standard.

"These valuations are used in estimating the values of all foreign merchandise exported to the United States."

The following statements, running from January 1, 1874, to July 1, 1902, have been prepared to assist in computing the values in American money of the trade, prices, values, wages, etc., of and in foreign countries, as given in consular and other reports. The series of years are given so that computations may be made for each year in the proper money values of such year. In hurried computations, the reductions of foreign currencies into American currency, no matter for how many years, are too often made on the bases of latest valuations. All computations of values, trade, wages, prices, etc., of and in the "fluctuating-currency countries" should be made in the values of their currencies in each year up to and including 1898, and in the quarterly valuations thereafter.

To meet typographical requirements, the quotations for the years 1875–1877, 1879–1882, 1884–1887, 1895, and 1897 are omitted, these years being selected as showing the least fluctuations when compared with years immediately preceding and following.

To save unnecessary repetition, the estimates of valuations are divided into three classes, viz: (A) countries with fixed currencies, (B) countries with fluctuating currencies, and (C) quarterly valuations of fluctuating currencies.

A.—*Countries with fixed currencies.*

The following official (United States Treasury) valuations of foreign coins do not include "rates of exchange."

Countries.	Standard.	Monetary unit.	Value in U.S. gold.	Coins.
Argentine Republic..	Gold and silver..	Peso.....	$0.96,5	Gold—argentine ($4.82,4) and ½ argentine; silver—peso and divisions.
Austria-Hungary*.....	Gold	Crown.....	.20,3	Gold—20 crowns ($4.05,2) and 10 crowns.
Belgium.....	Gold and silver..	Franc	.19,3	Gold—10 and 20 franc pieces; silver—5 francs.
Brazil	Gold	Milreis	.54,6	Gold—5, 10, and 20 milreis; silver—½, 1, and 2 milreis.
British North America (except Newfoundland).	.....do	Dollar.....	1.00	
British Honduras.....	.....do	.....do	1.00	
Chile.....	.....do	Peso.....	.36,5	Gold—escudo ($1.25), doubloon ($3.65), and condor ($7.30); silver—peso and divisions.
Costa Rica.....	.....do	Colon.....	.46,5	Gold—2, 5, 10, and 20 colons; silver—5, 10, 25, and 50 centisimos.
Cuba	Gold and silver..	Peso.....	.92,6	Gold—doubloon ($5.01,7); silver—peso (60 cents).
Denmark.....	Gold	Crown.....	.26,8	Gold—10 and 20 crowns.
Ecuador†	.....do	Sucre.....	.48,7	Gold—10 sucres ($4.8665); silver—sucre and divisions.
Egypt.....	.....do	Pound (100 piasters).	4.94,3	Gold—10, 20, 50, and 100 piasters; silver—1, 2, 10, and 20 piasters.
Finland	.....do	Mark.....	.19,3	Gold—10 and 20 marks ($1.93 and $3.85,9).
France	Gold and silver..	Franc	.19,3	Gold—5, 10, 20, 50, and 100 francs; silver—5 francs.
Germany	Gold	Mark.....	.23,8	Gold—5, 10, and 20 marks.
Great Britain.....	.....do	Pound sterling..	4.86,6½	Gold—sovereign (pound sterling) and half sovereign.
Greece	Gold and silver..	Drachma.....	.19,3	Gold—5, 10, 20, 50, and 100 drachmas; silver—5 drachmas.
Haiti	.....do	Gourde.....	.96,5	Silver—gourde.
India‡.....	Gold	Rupee	.32,4	Gold—sovereign ($4.8665); silver—rupee and divisions.
Italy	Gold and silver..	Lira	.19,3	Gold—5, 10, 20, 50, and 100 lire; silver—5 lire.
Japan §.....	Gold	Yen	.49,8	Gold—1, 2, 5, 10, and 20 yen.
Liberia	.....do	Dollar.....	1.00	
Netherlands.....	Gold and silver..	Florin	.40,2	Gold—10 florins; silver—½, 1, and 2½ florins.
Newfoundland	Gold	Dollar.....	1.01,4	Gold—$2 ($2.02,7).
Peru‖.....	.....do	Sol	.48,7	Gold—libra ($4.8665); silver—sol and divisions.
Portugal	.....do	Milreis	1.08	Gold—1, 2, 5, and 10 milreis.
Russia ¶	.....do	Ruble	.51,5	Gold—imperial ($7.718) and ½ imperial ($3.80); silver—¼, ½, and 1 ruble.
Spain.....	Gold and silver..	Peseta.....	.19,3	Gold—25 pesetas; silver—5 pesetas.
Sweden and Norway.	Gold	Crown.....	.26,8	Gold—10 and 20 crowns.
Switzerland	Gold and silver..	Franc	.19,3	Gold—5, 10, 20, 50, and 100 francs; silver—5 francs.
Turkey	Gold	Piaster	.04,4	Gold—25, 50, 100, 200, and 500 piasters.
Uruguay	.....do	Peso.....	1.03,4	Gold—peso; silver—peso and divisions.
Venezuela.....	Gold and silver..	Bolivar.....	.19,3	Gold—5, 10, 20, 50, and 100 bolivars; silver—5 bolivars.

* The gold standard went into effect January 1, 1900 (see Commercial Relations, 1899, Vol. II, p. 7). Values are still sometimes expressed in the florin, which is worth 2 crowns.

† Gold standard adopted in November, 1900. (See Consular Reports No. 225, June, 1899.)

‡ For an account of the adoption of the gold standard, see Consular Reports No. 238, p. 359.

§ Gold standard adopted October 1, 1897. (See Consular Reports No. 201, p. 259.)

‖ Gold standard adopted October 13, 1900.

¶ For an account of the adoption of the gold standard, see Review of the World's Commerce, 1896–97, p. 254.

B.—*Countries with fluctuating currencies, 1874–1898.*

Countries.	Standard.	Monetary unit.	Value in terms of the United States gold dollar on January 1—					
			1874.	1878.	1883.	1888.	1889.	1890.
Austria-Hungary*.	Silver	Florin	$0.47,6	$0.45,3	$0.40,1	$0.34,5	$0.33,6	$0.42
Bolivia	do	Dollar until 1880; boliviano thereafter.	.96,5	.96,5	.81,2	.69,9	.68	.85
Central America	do	Peso	.96,5	.91,8	.....	.69,9	.68	.85
China	do	Haikwan tael	1.61	.....	.....	.....	.....	.....
Colombia	do	Peso	.96,5	.96,5	.81,2	.69,9	.68	.85
Ecuador	do	do	.96,5	.91,8	.81,2	.69,9	.68	.85
Egypt†	Gold	Pound (100 piasters).	.....	4.97,4	4.90	4.94,3	.....	.....
India	Silver	Rupee	.45,8	.43,6	.38,6	.32,2	.32,3	.40,4
Japan	Gold	Yen	.99,7	.99,7	.....	.99,7	.99,7	.99,7
	Silver		.....	.....	.87,6	.75,3	.73,4	.91,7
Mexico	do	Dollar	1.04,7½	.99,8	.88,2	.75,9	.73,9	.92,3
Netherlands‡	Gold and Silver.	Florin	.40,5	.38,5	.....	.....	.....	.....
Peru	Silver	Sol	.92,5	.91,8	.81,2	.69,9	.68	.85
Russia	do	Ruble	.77,17	.73,4	.65	.55,9	.54,4	.68
Tripoli	do	Mahbub of 20 piasters.	.87,09	.82,9	.73,3	.63	.61,4	.76,7

Countries.	Standard.	Monetary unit.	Value in terms of the United States gold dollar on January 1—					
			1891.	1892.	1893.	1894.	1896.	1898.
Austria-Hungary*.	Silver	Florin	$0.38,1	$0.34,1	.....	.....	.....	.....
Bolivia	do	Boliviano	.77,1	.69,1	$0.61,3	$0.51,6	$0.49,1	$0.42,4
Central America	do	Peso	.77,1	.69,1	.61,3	.51,6	.49,1	.41,4
Colombia	do	do	.77,1	.69,1	.61,3	.51,6	.49,1	.42,4
Ecuador	do	do	.77,1	.69,1	.61,3	.51,6	.49,1	.42,4
India	do	Rupee	.36,6	.32,8	.29,2	.24,5	.23,3	.20,1
Japan§	do	Yen	.83,1	.74,5	.66,1	.55,6	.52,9	.....
Mexico	do	Dollar	.83,7	.75	.66,6	.56	.53,3	.46
Peru	do	Sol	.77,1	.69,1	.61,3	.51,6	.49,1	.42,4
Russia§	do	Ruble	.61,7	.55,3	.49,1	.41,3	.39,3	.....
Tripoli	do	Mahbub of 20 piasters.	.69,5	.62,3	.55,3	.46,5	.44,3	.....

* The silver standard prevailed in Austria-Hungary up to 1892. The law of August 2 of that year (see CONSULAR REPORTS No. 147, p. 623) established the gold standard.

† The Egyptian pound became fixed in value at $4.94,3 in 1887.

‡ The Netherlands florin fluctuated up to the year 1880, when it became fixed at 40.2 cents.

§ See footnote, table of fixed currencies.

C.—*Quarterly valuations of fluctuating currencies.*

Countries.	Monetary unit.	1899. Jan. 1.	1899. April 1.	1899. July 1.	1899. Oct. 1.	1900. Jan. 1.	1900. April 1.	1900. July 1.	1900. Oct. 1.
Bolivia	Silver boliviano.	$0.43,9	$0.43,4	$0.44,3	$0.43,6	$0.42,7	$0.43,6	$0.43,8	$0.45,1
Central America.	Silver peso	.43,9	.43,4	.44,3	.43,6	.42,7	.43,6	.43,8	.45,1
China	Amoy tael	.71	.70,2	.71,6	.70,5	.69,1	.70,5	.70,9	.72,9
	Canton tael	.70,8	.70	.71,4	.70,3	.68,9	.70,3	.70,7	.72,7
	Chefoo tael	.67,9	.67,2	.68,4	.67,4	.66,1	.67,4	.67,8	.69,7
	Chinkiang tael	.69,3	.68,6	.69,9	.68,9	.67,5	.68,8	.69,3	.71,2
	Fuchau tael	.65,6	.65	.66,2	.65,2	.64	.65,2	.65,6	.67,4
	Haikwan tael	.72,2	.71,4	.72,8	.71,8	.70,3	.71,7	.72,1	.74,2
	Hankau tael	.66,4	.65,7	.67	.66	.64,7	.65,9	.66,3	.68,2
	Hongkong tael	(*)	(*)	(*)	(*)	(*)	(*)	(*)	(*)
	Ningpo tael	.68,2	.67,5	.68,8	.67,8	.66,5	.67,7	.68,2	.70,1
	Niuchwang tael	.66,5	.65,9	.67,1	.66,1	.64,8	.66,1	.66,5	.68,4
	Shanghai tael	.64,8	.64,1	.65,4	.64,4	.63,1	.64,4	.64,8	.66,6
	Swatow tael	.65,5	.64,9	.66,1	.65,1	.63,9	.65,1	.65,5	.67,4
	Takao tael	.71,4	.70,7	.72	.71	.69,6	.70,9	.71,4	.73,4
	Tientsin tael	.68,8	.68	.69,4	.68,3	.67	.68,3	.68,7	.70,7
Colombia	Silver peso	.43,9	.43,4	.44,3	.43,6	.42,7	.43,6	.43,8	.45,1
Ecuador †	...do	.43,9	.43,4	.44,3	.43,6				
India	Silver rupee‡	.20,8	.20,6	.21	.20,7	.20,3	.20,7	.20,8	
Mexico	Silver dollar	.47,7	.47,2	.48,1	.47,4	.46,4	.47,3	.47,6	.49
Persia	Silver kran	.08,1	.08	.08,2	.08	.07,9	.08	.08,1	.08,3
Peru †	Silver sol	.43,9	.43,4	.44,3	.43,6	.42,7	.43,6	.43,8	.48,7

Countries.	Monetary unit.	1901. Jan. 1.	1901. April 1.	1901. July 1.	1901. Oct. 1.	1902. Jan. 1.	1902. April 1.	1902. July 1.
Bolivia	Silver boliviano.	$0.46,8	$0.45,1	$0.43,6	$0.42,8	$0.41,3	$0.40,3	$0.38,2
Central America	Silver peso	.46,5	.45,1	.43,6	.42,8	.41,3	.40,3	.38,2
China	Amoy tael	.75,7	.72,9	.70,5	.69,1	.66,9	.65,1	.61,8
	Canton tael	.75,5	.72,7	.70,3	.68,9	.66,7	.64,9	.61,7
	Chefoo tael	.72,4	.69,7	.67,4	.66,1	.63,9	.62,3	.59,1
	Chinkiang tael	.74	.71,2	.68,8	.67,5	.65,3	.63,6	.60,4
	Fuchau tael	.70,1	.67,5	.65,2	.64	.61,8	.60,2	.57,2
	Haikwan tael	.77,1	.74,2	.71,7	.70,4	.68	.66,3	.62,9
	Hankau tael	.70,9	.68,2	.65,9	.64,7	.62,6	.60,9	.57,9
	Hongkong tael	(*)	(*)	(*)	(*)	(*)	(*)	(*)
	Ningpo tael	.72,8	.70,1	.67,8	.66,5	.64,3	.62,6	.59,5
	Niuchwang tael	.71	.68,4	.66,1	.64,8	.62,7	.61,1	.58
	Shanghai tael	.69,2	.66,6	.64,4	.63,2	.61,1	.59,5	.56,5
	Swatow tael	.70	.67,4	.65,1	.63,9	.61,8	.60,2	.57,1
	Takao tael	.76,2	.73,4	.70,9	.69,6	.67,3	.65,5	.62,2
	Tientsin tael	.73,4	.70,7	.68,3	.67	.64,8	.63,1	.59,9
Colombia	Silver peso	.46,8	.45,1	.43,6	.42,8	.41,3	.40,3	.38,2
Mexico	Silver dollar	.50,9	.49	.49	.46,4	.44,9	.43,7	.41,5
Persia	Silver kran	.08,6	.08,3	.08,3	.07,9	.07,6	.07,4	.07

* The "British dollar" has the same legal value as the Mexican dollar in Hongkong, the Straits Settlements, and Labuan.

† See footnote, table of fixed currencies.

‡ The sovereign is the standard coin of India, but the rupee is the money of account. See also table of fixed currencies.

FOREIGN WEIGHTS AND MEASURES.

The following table embraces only such weights and measures as are given from time to time in CONSULAR REPORTS and in Commercial Relations:

Foreign weights and measures, with American equivalents.

Denominations.	Where used.	American equivalents.
Almude	Portugal	4.422 gallons.
Ardeb	Egypt	7.6907 bushels.
Are	Metric	0.02471 acre.
Arobe	Paraguay	25 pounds.
Arratel or libra	Portugal	1.011 pounds.
Arroba (dry)	Argentine Republic	25.3175 pounds.
Do	Brazil	32.38 pounds.
Do	Cuba	25.3664 pounds.
Do	Portugal	32.38 pounds.
Do	Spain	25.36 pounds.
Do	Venezuela	25.4024 pounds.
Arroba (liquid)	Cuba, Spain, and Venezuela	4.263 gallons.
Arshine	Russia	28 inches.
Arshine (square)	do	5.44 square feet.
Artel	Morocco	1.12 pounds.
Baril	Argentine Republic and Mexico	20.0787 gallons.
Barrel	Malta (customs)	11.4 gallons.
Do	Spain (raisins)	100 pounds.
Berkovets	Russia	361.12 pounds
Bongkal	India	832 grains.
Bouw	Sumatra	7,096.5 square meters.
Bu	Japan	0.1 inch.
Butt (wine)	Spain	140 gallons.
Caffiso	Malta	5.4 gallons.
Candy	India (Bombay)	529 pounds.
Do	India (Madras)	500 pounds.
Cantar	Morocco	113 pounds.
Do	Syria (Damascus)	575 pounds.
Do	Turkey	124.7036 pounds.
Cantaro (cantar)	Malta	175 pounds.
Carga	Mexico and Salvador	300 pounds.
Catty	China	1.333⅓ (1⅓) pounds.
Do*	Japan	1.31 pounds.
Do	Java, Siam, and Malacca	1.35 pounds.
Do	Sumatra	2.12 pounds.
Centaro	Central America	4.2631 gallons.
Centner	Bremen and Brunswick	117.5 pounds.
Do	Darmstadt	110.24 pounds.
Do	Denmark and Norway	110.11 pounds.
Do	Nuremberg	112.43 pounds.
Do	Prussia	113.44 pounds.
Do	Sweden	93.7 pounds.
Do	Vienna	123.5 pounds.
Do	Zollverein	110.24 pounds.
Do	Double or metric	220.46 pounds.
Chetvert	Russia	5.7748 bushels.
Chih	China	14 inches.

*More frequently called "kin." Among merchants in the treaty ports it equals 1.33⅓ pounds avoirdupois.

Foreign weights and measures, with American equivalents—Continued.

Denominations.	Where used.	American equivalents.
Coyan	Sarawak	3,098 pounds.
Do	Siam (Koyan)	2,667 pounds.
Cuadra	Argentine Republic	4.2 acres.
Do	Paraguay	78.9 yards.
Do	Paraguay (square)	8.077 square feet.
Do	Uruguay	Nearly 2 acres.
Cubic meter	Metric	35.3 cubic feet.
Cwt. (hundredweight)	British	112 pounds.
Dessiatine	Russia	2.6997 acres.
Do	Spain	1.599 bushels.
Drachme	Greece	Half ounce.
Egyptian weights and measures	(*See* CONSULAR REPORTS No. 144.)	
Fanega (dry)	Central America	1.5745 bushels.
Do	Chile	2.575 bushels.
Do	Cuba	1.599 bushels.
Do	Mexico	1.54728 bushels.
Do	Morocco	Strike fanega, 70 lbs.; full fanega, 118 lbs.
Do	Uruguay (double)	7.776 bushels.
Do	Uruguay (single)	3.888 bushels.
Do	Venezuela	1.599 bushels.
Fanega (liquid)	Spain	16 gallons.
Feddan	Egypt	1.03 acres.
Frail (raisins)	Spain	50 pounds.
Frasco	Argentine Republic	2.5096 quarts.
Do	Mexico	2.5 quarts.
Frasila	Zanzibar	35 pounds.
Fuder	Luxemburg	264.17 gallons.
Funt	Russia	0 9028 pound.
Garnice	Russian Poland	0.88 gallon.
Gram	Metric	15.432 grains.
Hectare	do	2.471 acres.
Hectoliter:		
Dry	do	2.838 bushels.
Liquid	do	26.417 gallons.
Joch	Austria-Hungary	1.422 acres.
Ken	Japan	6 feet.
Kilogram (kilo)	Metric	2.2046 pounds.
Kilometer	do	0.621376 mile.
Klafter	Russia	216 cubic feet.
Koku	Japan	4.0629 bushels.
Korree	Russia	3 , b[illegible]els.
Kwan	Japan	[illegible]8 pounds.
Last	Belgium and Holland	85.134 bushels.
Do	England (dry malt)	82.52 bushels.
Do	Germany	2 metric tons (4,480 pounds).
Do	Prussia	112.29 bushels.
Do	Russian Poland	113⅛ bushels.
Do	Spain (salt)	4,760 pounds.
League (land)	Paraguay	4,633 acres.
Li	China	2,115 feet.
Libra (pound)	Argentine Republic	1.0127 pounds.
Do	Central America	1.043 pounds.
Do	Chile	1.014 pounds.
Do	Cuba	1.0161 pounds.
Do	Mexico	1.01465 pounds.
Do	Peru	1.0143 pounds.
Do	Portugal	1.011 pounds.
Do	Spain	1.0144 pounds.
Do	Uruguay	1.0143 pounds.
Do	Venezuela	1.0161 pounds.

Foreign weights and measures, with American equivalents—Continued.

Denominations.	Where used.	American equivalents.
Liter	Metric	1.0567 quarts.
Livre (pound)	Greece	1.1 pounds.
Do	Guiana	1.0791 pounds.
Load	England (timber)	Square, 50 cubic feet; unhewn, 40 cubic feet; inch planks, 600 superficial feet.
Manzana	Costa Rica	1⅘ acres.
Do	Nicaragua and Salvador	1.727 acres.
Marc	Bolivia	0.507 pound.
Maund	India	82⅔ pounds.
Meter	Metric	39.37 inches.
Mil	Denmark	4.68 miles.
Do	Denmark (geographical)	4.61 miles.
Milla	Nicaragua and Honduras	1.1493 miles.
Morgen	Prussia	0.63 acre.
Oke	Egypt	2.7225 pounds.
Do	Greece	2.84 pounds.
Do	Hungary	3.0817 pounds.
Do	Turkey	2.82838 pounds.
Do	Hungary and Wallachia	2.5 pints.
Pic	Egypt	21¼ inches.
Picul	Borneo and Celebes	135.64 pounds.
Do	China, Japan, and Sumatra	133⅓ pounds.
Do	Java	135.1 pounds.
Do	Philippine Islands	137.9 pounds.
Pie	Argentine Republic	0.9478 foot.
Do	Spain	0.91407 foot.
Pik	Turkey	27.9 inches.
Pood	Russia	36.112 pounds.
Pund (pound)	Denmark and Sweden	1.102 pounds.
Quarter	Great Britain	8.252 bushels.
Do	London (coal)	36 bushels.
Quintal	Argentine Republic	101.42 pounds.
Do	Brazil	130.06 pounds.
Do	Castile,* Chile, Mexico, and Peru	101.41 pounds.
Do	Greece	123.2 pounds.
Do	Newfoundland (fish)	112 pounds.
Do	Paraguay	100 pounds.
Do	Syria	125 pounds.
Do	Metric	220.46 pounds.
Rottle	Palestine	6 pounds.
Do	Syria	5¼ pounds.
Sagene	Russia	7 feet.
Salm	Malta	490 pounds.
Se	Japan	0.02451 acres.
Seer	India	1 pound 13 ounces.
Shaku	Japan	11.9305 inches.
Sho	do	1.6 quarts.
Standard (St. Petersburg)	Lumber measure	165 cubic feet.
Stone	British	14 pounds.
Suerte	Uruguay	2,700 cuadras (see cuadra).
Sun	Japan	1.193 inches.
Tael	Cochin China	590.75 grains (troy).
Tan	Japan	0.25 acre.
To	do	2 pecks.
Ton	Space measure	40 cubic feet.
Tonde (cereals)	Denmark	3.94783 bushels.
Tondeland	do	1.36 acres.

*Although the metric weights are used officially in Spain, the Castile quintal is employed in commerce in the Peninsula and colonies, save in Catalonia; the Catalan quintal equals 91.71 pounds.

Foreign weights and measures, with American equivalents—Continued.

Denominations.	Where used.	American equivalents.
Tsubo	Japan	6 feet square.
Tsun	China	1.41 inches.
Tunna	Sweden	4.5 bushels.
Tunnland	Sweden	1.22 acres.
Vara	Argentine Republic	34.1208 inches.
Do	Central America	32.87 inches.
Do	Chile and Peru	33.367 inches.
Do	Cuba	33.384 inches.
Do	Curaçao	33.375 inches.
Do	Mexico	33 inches.
Do	Paraguay	34 inches.
Do	Spain	0.914117 yard.
Do	Venezuela	33.384 inches.
Vedro	Russia	2.707 gallons.
Vergees	Isle of Jersey	71.1 square rods.
Verst	Russia	0.663 mile.
Vlocka	Russian Poland	41.98 acres.

METRIC WEIGHTS AND MEASURES.

Metric weights.

Milligram ($\frac{1}{1000}$ gram) equals 0.0154 grain.
Centigram ($\frac{1}{100}$ gram) equals 0.1543 grain.
Decigram ($\frac{1}{10}$ gram) equals 1.5432 grains.
Gram equals 15.432 grains.
Decagram (10 grams) equals 0.3527 ounce.
Hectogram (100 grams) equals 3.5274 ounces.
Kilogram (1,000 grams) equals 2.2046 pounds.
Myriagram (10,000 grams) equals 22.046 pounds.
Quintal (100,000 grams) equals 220.46 pounds.
Millier or tonnea—ton (1,000,000 grams) equals 2,204.6 pounds.

Metric dry measures.

Milliliter ($\frac{1}{1000}$ liter) equals 0.061 cubic inch.
Centiliter ($\frac{1}{100}$ liter) equals 0.6102 cubic inch.
Deciliter ($\frac{1}{10}$ liter) equals 6.1022 cubic inches.
Liter equals 0.908 quart.
Decaliter (10 liters) equals 9.08 quarts.
Hectoliter (100 liters) equals 2.838 bushels.
Kiloliter (1,000 liters) equals 1.308 cubic yards.

Metric liquid measures.

Milliliter ($\frac{1}{1000}$ liter) equals 0.0388 fluid ounce.
Centiliter ($\frac{1}{100}$ liter) equals 0.338 fluid ounce.
Deciliter ($\frac{1}{10}$ liter) equals 0.845 gill.
Liter equals 1.0567 quarts.
Decaliter (10 liters) equals 2.6418 gallons.
Hectoliter (100 liters) equals 26.417 gallons.
Kiloliter (1,000 liters) equals 264.18 gallons.

Metric measures of length.

Millimeter ($\frac{1}{1000}$ meter) equals 0.0394 inch.
Centimeter ($\frac{1}{100}$ meter) equals 0.3937 inch.
Decimeter ($\frac{1}{10}$ meter) equals 3.937 inches.

Meter equals 39.37 inches.
Decameter (10 meters) equals 393.7 inches.
Hectometer (100 meters) equals 328 feet 1 inch.
Kilometer (1,000 meters) equals 0.62137 mile (3,280 feet 10 inches).
Myriameter (10,000 meters) equals 6.2137 miles.

Metric surface measures.

Centare (1 square meter) equals 1,550 square inches.
Are (100 square meters) equals 119.6 square yards.
Hectare (10,000 square meters) equals 2.471 acres.

CONSULAR REPORTS.

COMMERCE, MANUFACTURES, ETC.

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IRON AND STEEL INDUSTRY OF CANADA.

A country that has vast deposits of iron ore has a solid foundation for commercial ascendancy. Few countries have more iron ore than the Dominion of Canada. It has also coal, and the immense value of these deposits has only been fully appreciated within the last few years. Americans were really the first to realize the immense resources here. They have entered and joined capital with Canadians of wealth and organized the iron and steel industry. The works are under the direction of Americans experienced in this line, and in two years the progress has been astoundingly rapid.

Industrial Canada, a publication issued monthly by the Canadian Manufacturers' Association, gives much information concerning the iron and steel industry in Canada. It says:

If one takes a map and draws a line from British Columbia, on the west, to St. John's, Newfoundland, on the east, the line will run through four well-developed beds of ore of large quantity and of excellent quality, all capable of being mined as cheaply as dirt. They are related to the coal as follows:

(1) For British Columbia, coal beds exist in the United States not far from Seattle, and in the Crow's Nest, on the Canadian side.

(2) On the northern shores of Lake Superior are large and pure beds, such as the Helen mine. They are being utilized by the Canadian Iron Furnace Company, at Midland, at the head of which is Mr. Clergue, an American. The Cramp Ontario Steel Company, another American company, will also utilize them in coke furnaces at Collingwood, which have a daily capacity of 250 tons each. Both these plants can obtain their coal at a freight cost of $1.97, or $1.28 lower than the Pittsburg standard.

(3) In the Ontario district exist ores of great promise, within reasonable distance of United States coal fields. The Government admits coke free of duty, which is favorable to the manufacturer.

Iron ore has been found on the Belcher's Islands, the Sleepers, the Baker's Dozen, and the King George Islands, in Hudson Bay, off the coast of Ungava. Some coal has also been found.

There are eighteen rolling mills and steel works completed in Canada. Of these, one makes steel in a special Bessemer converter, one makes Tropenas steel, and four make open-hearth steel, while two standard Bessemer steel plants and one open-hearth steel plant are being built. The annual capacity of all plants is: Standard, Bessemer, Tropenas, and special Bessemer ingots and castings, 301,400 gross tons; open-hearth ingots and castings, 537,000 gross tons; total ingots and castings, 838,400 tons; rolled products, 981,900 tons.

The crowning opportunity is in Nova Scotia, where two strong companies—the Dominion Iron and Steel Company and the Nova Scotia Steel and Coal Company—have been established with United States capital. The ore is drawn not only from Nova Scotia, in close proximity to the coal, but also from the famous mines on Belle Island. The manufacturing is done at Sydney, and it is claimed the cost of pig iron there is lower than anywhere else in the world. Compared with the Pittsburg cost, it represents a saving of $2.455 per ton. There is a further saving of $2 a ton freight for export, Sydney being an ocean port. Pig iron can be made here for $6 a ton, steel blooms for less than $10 a ton, and steel rails at about $12.

Steel rails and heavy sections of structural steel form a large part of the iron consumed in Canada. Up to a recent date, every ton of this material was imported from foreign sources; now, the country is beginning to export. The new mills at Sault Ste. Marie are producing both steel rails and structural steel. At Sydney, a steel-rail mill is in process of construction, and steel billets and blooms are already being made. At New Glasgow, Hamilton, and Collingwood a similar expansion in other lines of steel is taking place. In all of these places, American capital is dominant.

The following table shows the production of pig iron in Canada since 1894:

Year.	Quantity.	Year.	Quantity.
	Tons.		*Tons.*
1901	244,976	1897	53,796
1900	86,090	1896	60,030
1899	94,077	1895	37,829
1898	68,756	1894	44,791

Although the production for 1901 is about three times as large as that for the year previous, the building of new plants insures a much greater increase this year. Canada does not yet produce nearly enough for home wants, which are estimated at 800,000 tons a year.

The table of exports of pig iron is as follows:

Year.	Quantity.	Value.
	Tons.	
1892	3	$95
1893	12	330
1895	259	6,202
1896	1,940	45,363
1897	2,627	65,555
1898	2,403	61,029
1899	2,188	50,767
1901	5,623	117,456

In the first eight months of the present fiscal year, Canada has exported 68,669 tons of pig iron, valued at $661,531—that is to say, the exports for the first eight months show an increase of 463 per cent over last year. In 1897, the value of Canada's total exports of "iron and steel and manufactures of" was $1,397,195; in 1901, $3,717,537. Nevertheless, the total value of the import in this line in 1901 amounted to $27,107,419.

The Dominion Government grants bounties for the manufacture of iron and steel in Canada. They are as noted below:

Period.	On pig iron—		On steel.
	From native ore.	From foreign ore.	
To April 21, 1902.....per ton...	$3.00	$2.00	$3.00
April 21, 1902, to July 1, 1903.....do.....	2.70	1.80	2.70
July 1, 1903, to July 1, 1904.....do.....	2.25	1.50	2.25
July 1, 1904, to July 1, 1905.....do.....	1.65	1.10	1.65
July 1, 1905, to July 1, 1906.....do.....	1.05	.70	1.05
July 1, 1906, to July 1, 1907.....do.....	.60	.40	.60

The amount paid in bounty on pig iron in Canada during each fiscal year since 1884 has been as follows:

Year.	Amount.	Year.	Amount.
1884	$44,090	1893	$93,896
1885	38,655	1894	125,044
1886	39,270	1895	63,384
1887	59,576	1896	104,105
1888	33,313	1897	66,509
1889	37,234	1898	165,654
1890	25,697	1899	187,954
1891	20,153	1900	238,307
1892	30,294	1901	351,259

These bounties were apportioned among the following firms:

Canadian Iron Furnace Company, Three Rivers	$16,614
Midland Iron Works	59,169
Deseronto Iron Company	27,468
Dominion Iron and Steel Company, Sydney	55,287
Electric Reduction Company	1,173
Hamilton Iron and Steel Company	12,455
John McDougall & Co	2,379
Nova Scotia Steel and Iron Company	66,711

There was paid out $16,703 in bounties on iron puddled bars. The Hamilton Iron and Steel Company received the whole amount. The bounties on steel ingots amounted to $100,057, or $35,697 in excess of those of the year previous. The Hamilton Iron and Steel Company received $28,310 and the Nova Scotia Steel Company $71,746.

Canadian bridge companies are also protected on structural steel up to 35 pounds per yard, by a duty of $7 per ton. On steel of 36 pounds per yard and heavier, the duty is 10 per cent. For electric-street-car purposes, steel rails are dutiable at 30 per cent, and the same rate is charged on all light rails up to 45 pounds per yard; but all rails outside of these two descriptions, and weighing over 45 pounds per yard, are admitted into the country free. Much higher protection is being demanded by the iron and steel interests, but the Government is not inclined to raise the tariff.

JOHN L. BITTINGER,
Consul-General.

MONTREAL, *May 22, 1902.*

PROPOSED LABOR-ARBITRATION LAW IN CANADA.

The following report has been received from Consul-General J. L. Bittinger, of Montreal:

The Canadian Minister of Labor recently introduced in the Dominion Parliament a compulsory arbitration bill, which, while of a general character, applies especially to railways and their employees. The measure may be outlined as follows:

(1) Applies to all lines under control of Parliament—Government or private, steam, electric, or other power (railways belonging to Provinces not included, except by consent of Province); (2) provides compulsory arbitration of all disputes between railways and employees; (3) prohibits strikes and lockouts and provides penalties; (4) provides seven provincial arbitration boards of three members and one Dominion board of five members; (5) railways to elect one provincial arbitrator and two Dominion arbitrators, and employees

to elect one provincial arbitrator and two Dominion arbitrators; (6) in election of arbitrators, railways to have one vote for each employee they pay in the Province, each employee to have one vote; (7) third provincial arbitrator chosen by agreement or by the governor in council; (8) awards to be current for one year, or until superseded by another award of same arbitrators. No court to have power to review, amend, or quash awards.

In introducing his bill, the Minister of Labor said:

> The railways of Canada, or of any other country, occupy a unique position. Trouble in any other business affects only the employers and the workmen, but a strike on a railway affects a third and more important interest. The public interest, being by far the most important, requires the greatest measure of protection. For this reason, the Government has determined to ask Parliament to pass a law which would be an extreme measure to ward off trouble and delay on railways. Railways are the creatures of Parliament, and are only permitted to run because it is in the public interest they should. It is the duty of Parliament to see that these objects are not defeated. When there is a strike, the property of a railway falls into disrepair, the bondholders suffer, the rail men themselves suffer, and the public suffers.
>
> The bill proposes to establish a tribunal which is to use conciliating influences when strikes are threatened, and, failing in bringing the parties to an understanding by these means, the tribunal is clothed by the act with ample powers to undertake arbitration and enforce its findings upon the railway corporations and railway employees.

There are heavy lockout penalties provided in the bill proposed. A company declaring a lockout makes itself liable to a fine equal to the amount of wages which would have been payable, and in addition must pay to each employee double the wage he would have earned but for the lockout. Men who go out on a strike are liable to be fined double the wage they would have earned. Inciting a strike is made unlawful.

The author of the bill declared that it was not the intention of the Government to attempt to pass the measure this session. It was proposed to have it considered for a year by all the parties interested, and any suggestions for improvement would be welcomed. It is generally believed that the bill, probably amended in some respects, will become a law at the next session of Parliament.

Commenting on the bill, the Montreal Herald, the leading organ of the Liberal party, said:

> The question that naturally arises is as to what will happen if either the companies or the men refuse to abide by the decision of the arbitrators. Penalties may be ordered, but how could they be enforced against several thousand men, who might decline to abide by a decision of the arbitrators upholding the action of a railway company in undertaking to reduce the rate of its employees' wages? In times of general prosperity, this is an unlikely contingency, but when trade depression prevails it is by no means improbable. It remains to be seen whether the

men will loyally abide by the decision of the court or will turn out only the work which they think the wage justifies.

Possibly, as in labor disputes generally, the pressure of public opinion will do much toward preserving the authority of the arbitrators. If the companies and the men, under the act, derive advantages when the awards are in their favor, public opinion may have great influence in compelling them to accept the awards when they are unfavorable to their claims.

It will be a decided gain for the public if a law be passed which will insure the safe and continuous operation of our railroads, and in the long run there should be advantages to both railroad companies and their employees more than equal to any disabilities that they may feel placed upon them by the curtailment of their liberties implied by compulsory arbitration.

The labor unions of Montreal are vigorously discussing the proposed law. The discussions serve chiefly to develop the vast importance of the act, not only because it introduces an entirely new and radical principle into the industrial legislation of Canada, but because the consequences arising out of its adoption are of a far-reaching character. As the revolutionary changes in industrial conditions proceed, the conviction grows here that trade unions become less and less able to effect their ends by means of the strike. In the maze of arguments urged for and against compulsory arbitration, two things stand out pretty plainly: First, it is generally admitted that the application of the compulsory method of settling disputes between capital and labor, not only on railways, but in all forms of industry, is inevitable; and, second, that the introduction of this principle will tend to harmonize the relations of capital and labor and promote a better understanding of those matters wherein the interests of each are identical.

CONDITIONS IN DAWSON.

TRANSPORTATION.

Dawson is connected with the outside world by two routes, known as the "inside" and "outside." The inside route is the one used in winter as well as in summer, and extends via Skagway overland and by river to Dawson. The other way is to St. Michael and thence up the Yukon River, this one being used in the summer season only.

The ocean travel along the route from the Puget Sound country to Skagway averages, during the summer season, a boat a day, these vessels being of 1,000 tons and upward. The most dangerous part of the course is in American waters, at Wrangle Narrows, where there is a fall of about 18 feet in the tide, and at low tide there is, at places in the channel, less than 8 feet of water. Many of the

buoys marking the channel are out of place. Considering the importance of this great natural water way, with its numerous islands, very few light-houses, trumpets, or other maritime devices for the protection of commerce have been provided, and, owing to the absence of these, many vessels have been wrecked and stranded, and maritime insurance premiums have become almost prohibitive, ranging, for the ordinary and best risks, from 10 to 15 per cent.

I am informed that the apparatus for equipping the fourth-class light-house and fog trumpet on Southeast Five Finger Island, in Alaskan waters, and that that for the fourth-class light and fog trumpet for Sentinel Island, 40 miles north of Juneau, have arrived and are in place, and the protection of these points will add considerably to the safety of the route.

From Skagway, Alaska, to White Horse, Canada, the White Pass and Yukon Railroad affords means of transportation for passengers and freight, covering a distance of about 111 miles. From White Horse to Dawson, in the winter time, for the greater part of the distance (about 384 miles) the route follows the river. It first traverses Fifty Mile River and Lake La Barge, and, leaving the ice at Lower La Barge, it strikes across the country to a road house called Carmack, where it again touches the river; from there, a short cut overland brings the traveler to Mackay, and the route thence to Dawson is by river. Fifty Mile River and Lake La Barge form part of the Yukon proper, but the above names are used because they were originally given by the argonauts as landmarks to measure the distance of the trail.

The trail for the most part is level. The trip is made in the winter season in commodious passenger stages drawn by four horses, which stages leave White Horse and Dawson twice a week; sometimes—travel warranting—oftener.

These sleds or stages are as comfortable as the circumstances of the route will permit. Each consists of an open box mounted on bob-sled runners, and is about 12 feet in length. In the center of the box are two seats, arranged back to back; in the rear is another seat, and in the front still another. In front of this is the driver's seat, with accommodations for one passenger, making a seating capacity for nine passengers and driver.

The stages are upholstered in leather and corduroy, and furnished with large fur rugs and robes. In the rear is a boot, in which 1,000 pounds of mail and 1,000 pounds of passenger baggage can be carried.

The first passenger stage left White Horse this season on December 17, and the last stage of the season will leave Dawson April 20 for White Horse.

The travel has been very heavy this winter, but not a single accident has occurred. The sleds are well equipped with good, modern braking appliances, and every precaution is taken to avoid accidents or delays.

About three stops are made daily, if a continuous day and night journey is not contemplated, and a relay of fresh horses is supplied every 25 miles. The trip is usually made in seventeen relays, for which sixty-eight horses are used. About 75 miles per day are made, on an average. The quickest time made between White Horse and Dawson, including day and night service, was three days and ten hours, which enabled letters from New York and Philadelphia to reach Dawson during the winter months within fifteen days.

Passengers not desiring to travel at night are provided for at road houses, which are comfortably furnished. The daily cost of meals along the trail, including lodging at the inns, averages about $6 per passenger. The longest distance between any two stations—Upper and Lower La Barge—is 30 miles.

In winter the trail is well packed and is comparatively smooth. The weather at times is very cold, averaging for days in the forties below zero; but, with the exception of that part of the route covered by Lake La Barge, there is an absence of winds or blizzards, and the trip is made in comfort and safety.

The average fare from White Horse to Dawson during the winter was $100, the lowest being $90 and the highest $150, exclusive of excess baggage (each passenger being allowed 25 pounds of baggage and all in excess being carried at the rate of 40 cents per pound) and road-house expenses.

I have dwelt at some length on this part of the trip, for the reason that it is the only means of access to Dawson and the lower river country (Territory of Alaska) in the winter season, and our only mail route for Alaskan interior points.

In the summer, the trip from White Horse to Dawson is made by steamboats on the Yukon River, and the fare averages $75, including board. This route, in connection with the railroad from Skagway to White Horse, forms the inside summer route referred to.

The all-water route via St. Michael and up the Yukon River to Dawson is used very largely in the summer, and it is by this that the commercial companies bring in their supplies.

The steamers on both routes are modern, constructed for the purpose, and well equipped; those on the lower river afford every convenience for the comfort and pleasure of the traveler.

As to means of access from Dawson to different parts of the surrounding territory, the Canadian Government has within the last two years constructed good wagon roads to all of the creeks within

a radius of 40 or 50 miles. At the end of the year 1901, there were over 196 miles of these roads, which have greatly facilitated the development of the gold fields. I inclose a map of the roads.*

MINING.

The development of the Klondike has been largely due to the enterprise and capital of our own people, about 70 per cent of the population being Americans.

Much work has been done on the creeks this year, and, notwithstanding reports to the contrary, the output of gold promises to exceed that of 1901, which amounted to over $20,000,000. The statement that a business panic prevails in Dawson and that the miners are deserting the creeks is also false. From personal investigation, I am able to say that the business men of this community have the utmost confidence in the future of the Territory, and are making preparations for a busy season.

I have, within the past few weeks, visited all the creeks on which the principal mining claims are located, to wit, Bonanza, Eldorado, Dominion, Sulphur, Gold Run, and Hunker, and I find that mining operations are progressing satisfactorily and are being conducted with modern machinery and improved methods, resulting in a much larger output of pay dirt than in former years. Mining men generally with whom I have conversed regard the outlook as very promising, and expect that the clean up of the present season will compare favorably with the best of previous years. Preparations for an unusual amount of summer work are well under way, and the demand for men for such work is very great. The old method of thawing the ground by wood fires and hoisting the dirt by means of the hand windlass is being rapidly discontinued, and the steam thawer and automatic lift and bucket are rapidly taking its place.

The mining interests of this Territory have been greatly unsettled for the last year, owing to concessions granted by the Government at Ottawa providing for the absorption of many of the valuable claims and closing all lapsed claims to relocation by the individual miner, as well as water rights for mining purposes. One of the largest was the Treadgold concession, granted to Malcolm H. Orr Ewing, A. N. C. Treadgold, and Walter Barwick. By the terms of the original order, the concession granted the applicants all claims on Hunker, Bear, and Bonanza creeks and their tributaries, and all the water in the Klondike River, amounting to 225,000 miner's inches a minute, as well as all claims that had lapsed prior to the 1st of June, 1902 (embracing at least 3,000), and all the water in the creeks

* Filed for reference in the Bureau of Foreign Commerce, where it may be examined by parties interested.

tributary to the Klondike, with the exclusive right to sell water at $1 an inch. This price was subsequently reduced to 25 cents a miner's inch.

The concession created great discontent among all mining and business interests of Dawson, and the Commissioner of the Territory, Hon. James H. Ross, made a trip to Ottawa to have it modified. As a result of the agitation, the most objectionable features have been rescinded.

A steady search is being made for gold-bearing quartz lodes or ledges, but thus far without success.

COAL.

Wood, on which the community has up to this time been entirely dependent for fuel, is becoming scarce and expensive, the price during the last winter averaging $15 per cord, uncut and unsawed, making the cost to the consumer about $22 per cord.

Persistent search has been made for coal, and two mines are now successfully operated in the Territory, one owned by the North American Trading and Transportation Company in the Forty Mile district of the Yukon Territory, 10 miles below the post known as Forty Mile, on the lower river. The main shaft of the mine has reached a depth of over 155 feet, at which depth the frost line was passed. Careful tests have been made of the coal, and it is found to be a lignite of good steam-producing qualities. The vein operated by this company is 9 feet in thickness, and is one of three veins of similar thickness and quality on a tract of 1,360 acres of land.

The other mine in operation is on Lewes River, a part of the Upper Yukon proper, 480 miles from Dawson. It has reached a depth of 325 feet. The vein is 3 feet 6 inches in thickness and shows a fair quality of bituminous coal.

ALASKA.

Some very rich strikes of placer gold have been made in the Eagle mining district on Chicken Creek and other tributaries of the Forty Mile River, as well as in the Koyukuk mining district of Alaska. Good lignite coal has also recently been discovered in paying quantities on Washington Creek, about 12 miles from the Yukon River, in the Forty Mile mining district of Alaska.

In the Chicken Creek claims, the depth from the surface to bed rock is from 12 to 37 feet, and the muck covers the ground to from 6 to 20 feet; the pay gravel running from a few inches to 5 and 6 feet in depth and averaging from a few cents to as high as 40 cents per pan on some claims.

As a result of the above strikes in our own territory, a large number of miners from this country are departing daily for the new fields and taking with them much improved machinery for working the claims; and, judging from present indications, the prospects for the early development of those districts are bright.

What our people there chiefly need are good roads or means of communication from one camp to another.

HENRY D. SAYLOR,
Consul.

DAWSON CITY, *April 18, 1902.*

RAILWAY EXTENSIONS IN MEXICO.

The ability of Americans in railroad management is again demonstrated in the improved condition of several lines in Mexico since they have been taken over by American companies. The Monterey and Mexican Gulf Railroad, extending from Monterey to Treviño and from Monterey to Tampico, was built for an American company, but soon passed into the hands of a Belgian corporation, under whose management the line deteriorated. Some time ago, the Mexican Central, which is now an American property, purchased the Monterey and Gulf line. It is being put into first-class shape and extended from Monterey to Torreon, where connection will be made with the main line of the Central. It is also understood that the Central will shortly construct a direct line from Tampico to Mexico City, will complete the line which is now building from Tampico to the Pacific coast, and, it is believed, will also build a line from Monterey to some point on the Rio Grande, connecting there with some other system of roads. Several surveys are being made, and there is evidence that this enterprise will shortly extend its lines to many parts of the Republic where there are no roads, thereby developing rich parts of this country which at present have no means of marketing their products. These extensions will not only benefit Mexico, but will strengthen the trade relations with the United States.

Besides controlling the lines referred to above, the Mexican Central extends from El Paso, Tex., to the City of Mexico, running beautiful American coaches and Pullman sleeping cars from Mexico City to nearly all the northern cities of the United States.

PHILIP C. HANNA,
Consul-General.

MONTEREY, *May 29, 1902.*

RAILWAY CONSTRUCTION IN GUATEMALA.

The work of constructing the Northern Railway from El Rancho to Guatemala City is progressing most encouragingly. The grading has been completed to Sanarate, about 50 miles from Guatemala City, and from there the work will be rapidly pushed forward. I am informed that the road will be finished within the time specified in the contract, and that six months from now trains will be running between Puerto Barrios and Sanarate. From the latter place to Guatemala City, a stage line will be established.

The completion of the Northern Railway will be of great benefit to Guatemala, as it will considerably shorten the time to New Orleans. Only about six days will then be required to reach the United States from this city, while the trip on the Pacific side takes from seven to twelve days longer. Freight transportation also will be cheaper than by the Pacific route. The railroad was not at all affected by the recent earthquakes, and work on it is progressing in a business-like way.

JAMES C. MCNALLY,
Consul-General.

GUATEMALA CITY, *May 9, 1902.*

TRADE CONDITIONS IN GUATEMALA.

The opportunity for the introduction of American goods into Guatemala was never so good as at present. Our shoes and haberdashery are constantly in demand, while other articles of United States manufacture are sought. The business houses here, while partially yielding to these incessant demands, say that the conditions imposed by United States firms will not permit them to handle American goods exclusively, although they freely acknowledge their superiority. A general complaint is that American houses will not send representatives to show their goods.

The catalogue or circular system of advertising does not appeal to the dealers of Guatemala unless the goods be already known. I have no doubt that an actual display of American goods would win an order where a catalogue or other printed advertisement would not be noticed. This has been recently demonstrated in the matter of shoes. Numerous display cards showing the perfect style of our shoes had been sent to dealers here, but with no good result. A few months ago, a representative of one of our large Western houses arrived in Guatemala and displayed his wares for inspection. His

success was a complete surprise to him, and he informed me that, in future, he believed his orders would be increased. The same is true of other articles. Many houses in the United States write the consul, inclosing a sample of their goods, with the polite request that he hand it to one of the leading business houses dealing in that particular line. While every consular officer in the service feels a degree of pride in having goods of American make come into his territory, he may not have enough technical information as to cotton fabrics, hardware, paints, oils, varnish, etc., for his recommendation of the goods to be accepted. Dealers usually know what they want and know also the quality of the articles presented for their inspection.

While all concede the superior quality of American machinery, the universal complaint is that it is too delicately and intricately constructed, and necessitates the importation of a machinist to operate it. It is said that the smaller appurtenances, together with rivets and bolts, come singly, and that the inefficient American packing usually causes a breakage of these parts, which must be supplied before the machine can be operated, necessitating a delay of months. On the other hand, the people say that European machinery is so simply constructed that almost anyone can operate it after it has been put together; that the smaller parts come in duplicate, and if one is lost or broken no delay in sending for another is necessary.

United States flour is universally used, being imported from San Francisco by the Pacific Mail steamers.

The threadbare complaint against American packing is reiterated by local dealers as one of the drawbacks to our trade. While in some cases their criticism is just, I can say that we are improving. I have seen some American packing that will compare favorably with the French, which is most artistic and practical. The French use a light wood for cases, which are then wrapped with burlap. This is an advantage to the importer, as the freight and tariff are estimated on the gross weight. The American shipper is said to use heavy material for packing cases.

The tax on United States tobacco is prohibitory, and all tobacco is imported into Guatemala from the neighboring republics, there being a treaty between Salvador, Costa Rica, Nicaragua, Honduras, and Guatemala for the free exchange of natural products.

In the matter of stationery, cheapness rules the market; and this, with the credits granted by Europeans, wins the trade for them. Credits for six and nine months are freely given, after which time 6 per cent interest on the account is charged.

The proprietor of the leading furnishing house in Guatemala tells me that American dealers are too independent and do not

always keep their promises. This man, however, buys many American goods and has ordered a large line of shoes. He says that any advice offered as to packing is regarded as an attempt to interfere with the business of the exporter. Since shippers, as a rule, have never been in this country and therefore can have no knowledge of the peculiar system of handling goods, the wishes of the buyer should be law in this regard. The goods are lowered from the ship to the lighter and are often roughly handled. The same process is repeated in taking the goods from the lighter to the pier.

The sons of German business men shipping to this country come over and take a place with some firm here and remain for two or three years. They thus become acquainted with conditions of trade, as well as with the manner of catering to it. Their knowledge of the wants of the natives is one of the reasons why German goods control this market. The representatives of European houses make almost any concession to obtain orders. They conform to the style demanded, cut the goods in any lengths, or manufacture any pattern to suit the local trade. Until American manufacturers meet these conditions, their competitors will control the commerce of these countries.

It would be an advantage for local dealers to buy from American houses direct, saving the commission charge—5 per cent.

JAMES C. MCNALLY,
GUATEMALA CITY, *May 2, 1902.* *Consul-General.*

THE COFFEE CROP OF GUATEMALA.

The recent earthquakes, which totally destroyed Quezaltenango, the second city of Guatemala, and many of the neighboring smaller communities, visited with awful consequences the prosperous coffee plantations of the Republic. While the coffee trees themselves suffered little damage, the dwellings, storehouses, electric installations, coffee machinery, and other improvements on nearly all the estates were more or less seriously injured; and this will necessarily divert attention from the gathering of the coffee crop to the early repairing of the almost universal damage. Before the catastrophe of April 18, indications pointed to a very large output of coffee next season, but I can now say that the yield will not be one-half what was expected.

Many things at this time combine to retard even the necessary repairs on the estates. The most serious difficulty is the lack of labor. For many seasons past, the impossibility of securing adequate help for cleaning the coffee trees has been a source of constant

loss to most of the coffee planters, and now that the surplus labor of the Republic has been pressed into service to clear away the débris in the ruined cities and towns, the question has become still more serious. The building of new railway lines has also induced many laborers to leave the coffee estates to engage in grading or track laying. To escape compulsory service in the ruined cities, it is said that many laborers are crossing over into Salvador or Mexico.

JAMES C. MCNALLY,
GUATEMALA CITY, *May 9, 1902.* *Consul-General.*

NEW DUTIES IN GUATEMALA.

Consul-General J. C. McNally, of Guatemala City, under date of May 9, 1902, sends translation of a decree issued by the Government of Guatemala relative to new duties and articles to be admitted free, which reads, in substance:

The National Legislative Assembly of the Republic of Guatemala, considering that the earthquakes that occurred on the 18th instant have occasioned awful losses in several towns, and that the President of the Republic has called a special session so that the assembly may dictate the measures required by this national misfortune; considering that the legislative power is to take all the measures that can in some way alleviate the effects of the disaster, and that the establishment of several taxes of a transitory character will assist in helping the families of the sufferers, decrees:

ARTICLE 1. For five years from the 1st of May next, the following additional taxes shall be collected:

(1) Ten cents (0.4 cent) on each bottle of alcohol, which, of the capacity dictated by law, comes out of the deposits for consumption.

(2) Ten per cent more on the fee paid for the license to sell liquor or alcohol.

(3) Twenty per cent more upon the duties of importation on wines, liquor, and beer coming from abroad.

(4) Five pesos* ($2.06) yearly for each manzana (a square measure of 100 by 100 yards) of sugar cane in all plantations exceeding 5 manzanas.

(5) Ten per cent more in gold upon the import duties on tobacco in leaves or manufactured.

* * * * * * *

ART. 8. For two years, the importation of the following articles will be free of fiscal duties:

Tar and carboline.
Water pipes of galvanized iron.
Wood or iron houses, complete or in parts.
Cement.
Galvanized iron plates for roofs.
Iron or wooden pillars and annexes.
Wooden or iron doors and windows.
White oil paint and roof tile of any kind.

*The Guatemalan peso was valued by the United States Mint, April 1, 1902, at 40.3 cents.

CATTLE FOOD FROM SUGAR CANE IN THE WEST INDIES.

Experiments have been made by Mr. George Hughes, a director of one of the largest sugar estates in the British West Indies, which will result in the formation of a profitable industry in the manufacture of a new cattle food, to which the name "molascuit" has been applied. It is a composition of molasses and cush-cush of bagasse, the finest part of the fiber of sugar cane. Fifty per cent of cush-cush is digestible and nutritious. The proportions of the composition are 80 to 85 per cent of molasses and 15 to 20 per cent of cush-cush. This composition is air dried and may be made by utilizing the gases from the factory furnace. When ready for the market, it presents the appearance of very finely ground oil cake. There is another preparation in use known as "molassine meal," made from beet-sugar molasses and a vegetable matter, which sells at about $32 per ton and has a very good demand. Molascuit can be sold at about 20 per cent less, and can be shipped in bags. As a by-product of sugar it might be of considerable value to planters, who would thus have two ways of disposing of molasses—in making rum and molascuit. The matter has been brought before the board of agriculture, with a view of getting the preparation officially recognized, so that uniformity may be obtained. I have inquired of sugar planters if they could afford to use bagasse for this purpose, in preference to utilizing it for fuel, and was told that only a very small portion—and that the finest part of the fiber—of bagasse was required in the preparation, and that it would not interfere to any extent with the use of bagasse as fuel. They also acknowledged its value as a food for cattle and as a new industry for the colonies.

GEO. SAWTER,

ANTIGUA, *May 1, 1902.* *Consul.*

PINEAPPLES IN THE BAHAMAS.

The pineapple crop is ripening fast and shipments of the fruit are now being made. It will all be sent to the United States. The crop is smaller than the average, though the fruit itself is of good quality. It is estimated that in quantity it will not exceed, say, 60 per cent of last year's crop. As prices are now ruling, it will not bring over 80 per cent of last year's value. The average number of pineapples shipped from the Bahamas is about 6,000,000 per annum, worth some $250,000 or $275,000. The falling off this year, both in

quantity and value, means a serious loss to the planters of this colony and a certain loss to the trade of the United States, which takes the entire crop, selling the colonists goods in exchange. It is estimated that from sixty to seventy-five cargoes of the fruit will be carried to the United States in small, swift American schooners, which will earn from $40,000 to $50,000 as charter money.

The pineapple industry is developing new life, despite the threatened competition in the near future from Cuba and Porto Rico, and the plantations are being extended. So great is the demand for new plants and so inadequate the supply that the colonial legislature has just passed an act imposing an export duty on the plants of $1.20 for the first hundred and of $2.40 per hundred for all above that number. Pineapple tops and slips are included in the term plants. An order for 170,000 dozen plants was lately received from Cuba. This act seemed necessary, as the shipments of the plants to Cuba and Florida were becoming very large.

The proprietors of canning factories here are much concerned over the apparent intention of our customs authorities to consider all pineapples put up in tin cans, with ever so small a quantity of sugar, as "preserved" fruit, liable to duty at 1 cent per pound and 35 per cent ad valorem. The canned fruit from this colony has heretofore been classified as "fruit in its own juice," and as such has been dutiable at 1 cent per pound and 25 per cent ad valorem. The new ruling, if it prevails, will increase the duty by 10 per cent, and, in the opinion of local packers, will seriously injure their business. Nevertheless, in spite of the uncertainty that prevails on the subject, I think about the usual quantity of fruit will be canned during the present season. The shipping and canning season covers the three months of May, June, and July.

THOS. J. MCLAIN,
Consul.

NASSAU, *May 8, 1902.*

TRADE CONDITIONS IN SERGIPE, BRAZIL.

Doubtless, no State of Brazil is suffering so much from business depression as is Sergipe. This is due to the fact that it is purely an agricultural State. Sugar and cotton, its chief products, have been lower in price, both at home and abroad, than for years, while the cost of production has remained about the same as heretofore, leaving the farmer in every instance a loss which varies only in proportion to the amount of land under cultivation. What affects the farmer affects business in general.

The State of Sergipe is the smallest of Brazil, and has an area of 39,200 square kilometers (15,135 square miles). It is triangular in

form and is wedged in between the States of Alagoas on the north, from which it is separated by the San Francisco River, and Bahia on the south, from which it is separated in part by the Real River. Its eastern boundary is the Atlantic coast line, and is 244 kilometers (155.6 miles) in extent.

Along the coast and for a distance of from 6 to 12 kilometers (3.7 to 7.4 miles) from the sea, the land is for the most part sandy and is well adapted for the culture of cocoa palms, of which there is a vast number.

Behind this section is a strip of some 60 miles of fertile farm lands, while still farther back the country is hilly and is devoted to cattle raising, containing but few settlements.

The population of the State is variously estimated at from 369,000 to 400,000, and is chiefly composed of mixed races—*i. e.*, Portuguese, African, and native Indian. The pure blooded Portuguese and African constitute a very small proportion. The census of 1890 gives the following:

White	91,021
Black	44,024
Indian	19,915
Mixed	144,095

The natural resources of the State are diversified. It is said to contain diamonds, gold and silver, and several other metals, while an abundance of wood suitable for building purposes and furniture is found in its forests. There also occurs a great variety of indigenous fruit trees and medical plants, while the waters of the State abound with fish and the forests with game.

Though the State relies upon agriculture, this is carried on very unscientifically. No attention is paid to rotation of crops. With one exception—in the sugar district—there is little introduction of new articles or improvement of old ones, and there is an almost entire lack of agricultural implements. Where these implements are found, they are of a type unsuited to the conditions which prevail, and the laborers can hardly be persuaded to use them.

There are a few plows and harrows scattered through the sugar-cane section, but they are heavy, cumbersome affairs of no particular value. Such a thing as a sulky plow or cultivator is unknown, though they might often be used to advantage. The native seems to prefer the hoe and machete to modern implements.

The chief difficulty appears to be the ease with which the native can live. He need not own land, as he can put up his mud hut anywhere; he has an abundance of fruit, such as the banana, jaca, caju, etc.; the tidal rivers are full of fish, shrimp, crabs, and oysters; and the woods abound with game. He can raise his small patch of

manioc, and, as it is never cold enough for fire, he only works when there is need of money to purchase articles which he does not produce. I have been shown fields full of cotton and other products which were going to waste because of the proprietors' inability to induce the laborers to harvest them.

One would think that laborers living on a farm would be compelled to work for the proprietor, but that does not seem to be the case here, as, in spite of the fact that in most cases they pay no rent, they will either refuse to work at all or will only work a few days at a time; yet they are allowed to remain upon the land preempted. In these instances I have reference to the man who erects his own mud hut and not to those who live in houses of the proprietors, the number of the latter class of houses being few as compared with the huts erected by the people.

COTTON.

The portion of the State devoted to cotton raising is in the interior, and has as its center the municipalities of Simao Dias, Itabaina, Sao Paulo, N. Senhor das Dores, and Aquidaban, and includes Propria and Gararu, on the San Francisco River.

Cotton is grown upon a number of small farms. The variety is of medium staple and is said to have been imported from the United States. The plants are about 2 feet apart, yield from 1 to 8 kilograms (2.2 to 17.6 pounds) each, and bear during two to five years. They frequently attain a height of more than 10 feet, but to prevent this the cattle are usually turned in after each crop, with the idea of allowing them to top the plants. From two to six pickings are made each year; but little care is taken to pick before the cotton falls from the boll or becomes dirty, and for this reason the Sergipe cotton commands a much lower price than does cotton of the States farther north, where more attention is paid to its proper gathering.

The cotton when picked is sent in bags on muleback to the larger towns, where it is ginned and baled for shipment. I could find no modern gin and cotton-press plants. The largest plant in the State is at Propria, on the San Francisco River. It has two small steam-power cotton gins, with old-fashioned screw-baling presses. In every case, the gins were of American manufacture and all were of one make. Such a thing as a compress is unknown. The cotton is trod into the presses by men, the screws applied, and the bale tied with long vines, which are ample, as the cotton is under no great pressure. The weight of a bale is limited to 50 kilograms (110 pounds), and two bales form a pack for an animal.

The chief market for the cotton is in the cities of Aracaju and Estancia, which have large cotton mills. The surplus is shipped to Bahia and Rio de Janeiro.

The cotton seed is utilized to make oil, and this product, which is only partly purified, is exported to Rio de Janeiro. The residue cake is sold for cattle food, but is in little demand. The only cotton-seed-oil factory is the one located at Villa Nova. It has gins, grinders, mixers, and hydraulic presses, and makes a fair grade of oil. The factory has good buildings and is well located on the margin of the river. It has a capacity of 600,000 liters (634,020 quarts) of oil per annum, but seldom produces 200,000 liters (211,340 quarts), because of the scarcity of seed. All of the machinery connected therewith, except a small American steam-power gin, is of English manufacture. If times were better, there would be a good chance to supply modern American machinery for the production of a better grade of oil.

COFFEE.

Coffee of fair quality is grown in the vicinity of Simao Dias and a little in other sections, but the crop can not always be relied upon and falls far short of being enough for local consumption. No modern methods are used in treating or cultivating the coffee.

RICE.

A considerable quantity of rice of medium quality is raised along the San Francisco River. This section is particularly well adapted to rice culture, as the river annually overflows its banks and forms many lagoons. I found no modern machinery for planting or thrashing the rice, and only one factory for hulling it. This factory is situated at Villa Nova, and has English machinery which requires many laborers and the passage of the rice through six machines before it is finally cleaned.

Throughout this district, there is an excellent opportunity for the introduction of American hand-power thrashers and hullers. In Propria, the largest city of the rice belt, rice is hulled in a wooden mortar by means of a heavy piece of wood used as a pestle. This method breaks the rice and requires a great expenditure of labor. After being separated from the husk, the débris is winnowed by allowing the contents of the mortar to fall a short distance when the wind is blowing. For cleaning 80 liters (84.5 quarts) 1.500 milreis (36 cents) is paid, and this is a good day's work.

MANIÇOBA RUBBER.

In 1898, the State appointed a commission to study the growing of maniçoba rubber (*Jatropha elastica*) in Ceara, with a view to introducing its culture into Sergipe, should it prove advisable. This commission went to Ceara, where maniçoba rubber trees were originally found wild and are now under extensive cultivation; and as a

result of the investigation, the culture of maniçoba has been introduced into various localities of this State. At present, it is impossible to tell what will be the result, as the groves have been too recently planted to yield. I have viewed two plantations, one with about 17,000 trees and the other with more than 20,000, and both seem to be in flourishing condition, if one may judge from the growth the trees have made in three years and the quantity of milk which will exude from a small cut made through the bark.

Maniçoba is grown from seed planted at the commencement of the rainy reason, 12 to 15 feet apart. Usually three seeds are planted to a hill, to provide for loss by failure to germinate, etc., the hills being finally thinned to one tree. There are several methods of planting, some filing the edge of the hard seed—which very much resembles the seed of the castor bean—so as to assist germination, others soaking the seeds for days prior to planting; but most rely entirely upon nature, and plant the seed and let it care for itself.

The ground is prepared for planting with a hoe or old-fashioned plow drawn by oxen. It is said that the plant will grow on run-down sugar lands. It is also cultivated on the sandy soils of Ceara, but it doubtless succeeds best on what would be styled good farming land. The tree requires little attention, and in many places the soil is not again cultivated, it being claimed that the grass and underbrush keep the heat of the sun from drying the roots of the plant and thus retarding its growth. It grows rapidly, reaching a height of from 12 to 36 feet in from four to six years. In good land, it will frequently grow more than 12 feet in one year, and has been known to produce rubber in six months after planting; but this is a great exception, the average time necessary being about two and one-half years, when each plant will give from 200 to 1,000 grams (7 to 35.2 ounces) of rubber a season.

The crop is gathered by removing from the trunk a V-shaped piece of bark and attaching to the lower angle a small vessel to collect the milk as it exudes.

There are different methods of coagulating the milk, but it is usually prepared by smoking, as with the juice of the hevea caoutchouc in the Amazon district, in which case it must be smoked within a couple of hours after gathering; or it is allowed to coagulate spontaneously in the air. When the rubber is properly prepared and is free from water and other extraneous matter, it meets with ready sale at a good price.

The cost of planting and gathering the initial crop of maniçoba is much less than for a similar operation with sugar cane, coffee, or cotton, while the profit is many times greater. The price is steady, because of the increased demand for rubber.

The culture of rubber bids fair to bring about greater prosperity in Sergipe by lessening the dependence of the farmers on sugar cane.

CORN AND BEANS.

Besides the agricultural products already mentioned, there is a considerable portion of the State which will produce good corn and beans, but the raising of these products is in the hands of the small farmer, who cultivates only sufficient to supply his immediate wants.

MANIOC.

This is the staple upon which the population depends for food. The sweet manioc—called here aipim—is cooked as are our potatoes, and the bitter manioc undergoes preparation to be converted into what is commonly called farina, which takes the place of bread. In spite of the fact that its cultivation is so general, there is only one factory in the State for its production, and that works chiefly for private use.

The system of preparation of farina consists in scraping the root of *Manihot utillissima*, then grating it, which is done with a large wheel bound with a home-made tin grater, or having nails driven along its border for the same purpose. The pulp thus formed is washed and pressed, and then baked in large, open iron pans which are heated from below, the mass being frequently stirred to prevent burning. I am told that this baking is to expel the poisonous principles which the raw root contains; but it is probably also to cook the starch, as the product, which resembles sawdust in appearance, is usually eaten without further preparation.

From the washings and expressed juice, starch and tapioca are made. A cheap machine which could perform the above-mentioned operations should find a ready sale throughout Brazil.

The quantity of starch found in this root is very great, and as its cultivation does not require any great care and as many varieties resist drought, it should be a desirable crop for our Southern States.

FACTORIES.

Besides the cotton-seed-oil factory and the rice-hulling plant already mentioned, there are scattered through the State several small soap factories, one factory for the preparation of castor oil from the bean, a sawmill, two large cotton factories, and a couple of tanneries.

The most important of the cotton factories is that of Aracaju. It has 156 looms, employs 350 men, women, and children, and in 1901 made 2,714,910 meters (2,959,252 yards) of cloth, varying from

that intended for sugar bags to the better grades of white and colored goods, and in price from 420 reis to 1.200 milreis (10 cents to 29 cents) per meter (3.28 yards). The greater part of its product is disposed of in Sergipe, but the remainder meets with a ready sale elsewhere in Brazil.

This factory annually makes improvements, and receives from England special cagoes of coal, colored yarns, and new machinery. Of late, the factory has been burning wood, which it finds economical. It works ten hours a day and the weavers earn on an average 1 milreis (24 cents) per day and tend two looms. Connected with the factory is a village for the employees; but only a small portion of them live there, as some object to maintaining that cleanliness of premises which the mill director demands, and prefer to live where there is no supervision. The machinery of this factory is all of English make, though I was informed by the director that it contained some American improvements.

The other cotton factory is situated at Estancia, at the confluence of the Piauhytinga River with the Piauhy, the power of which is utilized to run the mill. The factory has 160 looms and employs 250 operators, and, in addition to manufacturing sugar bags, makes a large variety of white and colored cotton goods, the yarns being colored on the premises. Its annual output is about 1,500,000 meters (1,635,000 yards), about one-third of which is sold in the State and the rest exported to neighboring States.

TANNERIES.

The largest tannery of the district is located at Caninde, and has a capacity of 3,000 half hides per month. There are fifty laborers engaged in this industry and the preparation is by hand.

FOUNDRIES.

There are several foundries and machine shops scattered through the sugar-cane country. The largest is at Aracaju, and is well mounted. It is capable of doing a good grade of work and makes repairs on large machinery. It is run by an Englishman, as is also one at Maroim, both having English machinery. The other foundries and shops in the State belong to Germans and have German machinery.

SALT.

The making of salt from sea water by atmospheric evaporation is quite an industry in the neighborhood of Aracaju and São Christovam. It is carried on in the flat lands along the banks of the tide-water rivers, the salt water being collected into large tanks, which are in reality ponds with clay bottoms and sides. The water is concentrated by evaporation, and as it becomes more dense it is conducted

to numerous small clay vats, called salines, where it undergoes further evaporation and crystallization. The extent of land used in the production of salt is great, but it could be utilized for no other purpose.

Salt production is in the hands of a few large proprietors, one in particular having three estates, on one of which he has 600 vats from eacn of which is taken twice a week from 4 to 6 algueires of 16 liters (16.9 quarts) each. The salt produced is a coarse, crude article, of three grades, varying from white to dirty brown color, the color seeming to be due to the kind of land on which it is made, together with the lack of attention paid to keeping the individual vats in good order.

The production of salt is from December to March, and depends upon the rainfall.

The industry has been recently crippled because of the multitude of taxes to which it is subject. Heretofore, there has been a State tax of 8 milreis ($1.92) for each connected section of eight vats or more, and an export tax of 8 per cent on value; 15 milreis ($3.60) for every deposit at the works and 30 milreis ($7.20) for each one in the cities. The Federal Government also required an internal revenue tax of 30 reis (0.7 cent) per kilogram (2.2 pounds) on all gross salt produced, and 25 reis (0.6 cent) for each quarter of a kilogram (0.55 pound) of refined salt. In addition to these taxes, the State recently assessed a tax of 7 reis (0.14 cent) per liter (1.05 quarts) of production, which leaves the owner little, if any, profit.

TRANSPORTATION.

Other than a short line on a sugar estate, there is no railroad in this State. A line, running from Aracaju to Capella, passing through Larangeiras, has been authorized. It has been surveyed, and the roadbed and embankment, including masonry, have been completed from Aracaju to Larangeiras, but further work has been stopped for about two years.

At present, the population of the interior has to rely upon pack mules, except that in a few sections of the sugar-producing regions there have been constructed at private expense, through private lands, roads which permit merchandise to be conducted to market by carts. These carts are small affairs, with two large wooden wheels, drawn by from four to ten oxen. They are hand made and cost from 150 to 200 milreis ($36 to $48). Their construction is such as to necessitate considerable power for locomotion, and the squeaking noise they make can be heard long before the cart can be seen.

The roads still leave much to be desired, but, with the conditions I observed, there is no reason why our light farm wagons could not be used to advantage.

From mills near the cities, sugar is sent to market in carts, twelve bags constituting a cargo. Mills distant from the city have to rely upon pack animals, which are capable of carrying two bags of sugar; but the cost of this transportation is such as to eat up a large per cent of the profits.

What is needed to develop the country is good roads and a network of railroads, to place the outlaying districts in close touch with the markets. Produce is very cheap in the interior towns, but by the time it has reached a market it has become expensive.

Travel through the greater portion of the State is by horse or mule, over bridle paths. Along much frequented ways, where the streams are deep enough to interrupt traffic, good stone bridges have been built or ferries have been established, but there is still necessity for much greater improvement along these lines. There are twenty-two of these bridges in use and two large ones under construction, while there are three ferries and a multitude of small bridges crossing brooks; but these latter are frequently impassable after heavy rains.

PORTS.

The ports on navigable water are Aracaju, Estancia, São Christovam, Maroim, Larangeiras, Riachuelo, Villa Nova, and Propria.

Aracaju, the capital, is a city of 27,000 inhabitants, and is situated on the west bank of the Cotinguiba River, about 2 miles from its mouth. Here are located the State and federal buildings, including the only federal custom-house in the State.

At one time, Aracaju was quite an important commercial center, and many foreign vessels entered and cleared there; but of late years its trade has declined, due to the low prices of sugar, coupled with the fact that the bar at the mouth of the river will not permit of free ingress or egress, giving only 14½ feet of water at high tide and being safe only to vessels drawing 11 feet or less, while the channel is constantly changing, on account of the shifting of the sand, and requiring daily soundings and the employment of pilots. Now, only vessels of shallow draft enter the port, and they carry all merchandise to and fro.

Attention is called to the fact that signals as to the condition of the bar, etc., are displayed from a wooden tower on the east bank of the entrance, opposite the light-house, and not from the light-house, as is stated in the pilot books which I have seen.

Stationed at Aracaju is a side-wheel boat used as a tug. It is the property of a company to which the State allows 12,000 miireis ($2,880), and the Federal Government an equal amount, each year as a subsidy. At present, the boat is out of repair and is in such a condition that it is hardly probable that it will ever run again, and

I understand that the company is in the market for a good second-hand, light-draft tug to take its place.

The port charges of Aracaju are:

	Milreis.	
Towage, per ton register	2.000	=$0.48
Municipal tax:		
Sailing vessels	10.000	= 2.40
Steamers	15.000	= 3.60
State tax	3.600	= .86
Pilotage, per ton register	.250	= .06
Bill of health, if bound for other Brazilian ports	20.000	= 4.80

Light-house dues are:

	Milreis.	
Less than 200 tons register	40.000	=$9.60
200 to 400 tons register	60.000	=14.40
400 to 700 tons register	80.000	=19.20
700 tons and over	90.000	=21.60

In addition to the above charges, there is collected for each member of the crew, exclusive of the captain, 1.920 milreis (46 cents) for hospital dues; for each mast, 6 milreis ($1.44); a stamp tax of 7.900 milreis ($1.89) for clearance certificate; and if vessels take cargo, a tax of 4 milreis (96 cents) and 10 per cent of each milreis (24 cents) of freight rates.

Through the efforts of the present captain of the port of Aracaju, the State was induced to contribute for the equipment of a meteorological station, which has been installed in a building constructed for that purpose. This station is in telegraphic communication with the federal capital and Pernambuco, the only other station to the north, and is doing good work.

São Christovam, the old capital, with 16,000 population, is frequently spoken of as being a port; but the port is, in reality, about 3 miles up the Vasa Barris River, while the city is two hours' journey by canoe farther up, and can be reached only at flood tide.

The moving of the capitol from São Christovam virtually killed the place. What were the largest and best of its houses are now in ruin and many buildings are empty. In the neighborhood of the town are large salt works and numerous sugar factories, which utilize the rivers to get their products to the vessels which anchor at the head of steamer navigation.

Estancia, with 20,000 inhabitants, is situated on the east bank of the River Piauhy, about 15 miles from the sea. It can be approached by vessels of light draft through the River Real for a distance of about 4 miles, the remaining distance being made in canoe in about two hours. The city proper is not on the river, but is more than a mile distant, being reached by a rough road up and down hills. Its commerce consists chiefly in the shipping of sugar.

Propria, with a population of 14,000, is on the San Francisco River, and is quite an important cotton and rice port. It is 84 kilometers (52 miles) distant from the sea and 36 kilometers (22.3 miles) distant from Penedo. It sends its products to Penedo by large canoe-shaped boats for embarkation on ocean-going vessels.

From Aracaju, Maroim with 10,000 inhabitants is reached, Larangeiras with 20,000 inhabitants, and Riachuelo with 11,000 inhabitants. These places are at the head of tide water on different branches of the river on which Aracaju is situated. They are accessible only by boat at high tide. They are in the center of sugar districts and are the points for the collection of sugar, which is sent down the river for embarkation at Aracaju.

NAVIGATION.

There are several lines of steamers and numerous small sailing vessels which connect Sergipe with other parts of the Republic. The chief lines are a branch of the Lloyd Brazileiro, which makes bimonthly voyages from Bahia, calling at Estancia, São Christovam, Aracaju, and Villa Nova; the Compagnia Pernambucano, from Pernambuco to Bahia twice a month, touching at Villa Nova and Aracaju only; Empreza Esperança Maritima, from Rio de Janeiro at irregular intervals to Aracaju and return; and irregular sailings of the Compagnia Nacional de Navagação Costeira. During the sugar season, when much cargo is offering, other small boats call at the various ports.

For internal navigation, one is dependent upon canoes and light-draft sailing vessels, except that there is a small steamer plying on alternate days from Aracaju to Larangeiras and Maroim. This boat is for the passenger trade only, and has a State subsidy of 12,000 milreis ($2,880), besides the passage money collected.

On the San Francisco River, in addition to the large cargo-carrying sailing vessels, of which there are many, a small steamer, touching at Propria and Gararu, makes a weekly trip.

TELEGRAPHIC COMMUNICATION.

The larger places of the State are in telegraphic communication with Aracaju, which is a chief station of the Federal Government lines, and consequently is in communication with the world at large.

COMMERCE.

In years gone by, Aracaju was a direct importer and vessels went there with full cargoes, but recently imports from foreign ports are first landed at Bahia or Maceio and from there are shipped in coastwise vessels to destination.

The greater part of the trade, however, is with Pernambuco, Bahia, and Rio de Janeiro, named in the order of importance.

The best way to obtain business in this State would be to send a thoroughly equipped salesman with a good line of samples to Aracaju and Estancia. Cheap, showy articles in all lines are chiefly desired. Articles of such quality that they can be guaranteed for durability are too expensive.

In the sugar section, I am convinced that a man understanding machinery could take a number of orders. It would be necessary for him to travel by horse and to have an abundance of time and patience, as no one seems to be in a hurry about anything; but the cost of the trip after arriving in the country would be little, because of the great hospitality of the people.

It would also be well to arrange with some firm in the principal cities to act as agent for machinery, or to at least have price lists, catalogues, and other information at hand. That more of our machinery is not in use is due to the lack of knowledge relative thereto. There is always an abundance of information to be had as to British machinery and goods, and with the many repair shops being run by Germans German machinery is gradually being introduced. Our machinery is purchased only when its prototype is not being produced in Europe, and then it is bought through European houses, instead of coming direct from the United States.

Catalogues and circulars in Portuguese or Spanish would be the next best way to bring our goods before the people; but it must be remembered that in many of the sections there is not a soul who understands English, and catalogues in that language would be wasted.

BANKS.

There is no bank in the State. One English bank of Bahia has a firm which acts as agent to collect drafts, etc.; but the agency is located at Maroim, instead of at Aracaju, which is not only the point at which business centers, but is in better communication with the different cities. It seems strange that a State with the population and business of Sergipe should be without an established bank within its borders.

SCHOOLS.

The State maintains 203 free primary schools, at which were last year matriculated 3,357 males and 3,666 females. In accordance with the report of the governor, the teachers in these schools have had for the most part no training, the methods are old, and the results are anything but satisfactory.

Effort is being made to put the schools upon a better basis by establishing a normal school at Aracaju and giving preference to graduates therefrom.

HEALTH.

In general, the health of the State is good, except in the rainy season, when malarial fevers are common and often fatal. The reason for this is that during that time the water frequently stands on the ground and offers excellent opportunity for the propagation of anopheles mosquitoes, two species of which I found in the district.

STATE FINANCES.

The financial condition of the State is anything but prosperous. The present governor has attempted to economize in every possible way, but even then the revenues of the State have failed to meet expenses. The reason for this is the marked decline in the value of exported products, particularly sugar, from which more than half of the export tax is derived. To such a condition were the finances of the State reduced that early this year the governor found it necessary to call a special session of the legislature to devise ways and means to meet the emergencies; and it was at that session that the 7 reis (0.14 cent) additional tax on salt was decreed.

EXPORT AND IMPORT TAX.

Like other States in Brazil, a considerable part of the revenues of Sergipe is derived from its export tax. The following is the tax on the principal articles, the amount being collected on the official value as determined by the State officials: Sugar or any product of cane exported to foreign countries, 5 per cent; sugar exported to other States in Brazil, 7 per cent; coffee, salt, cotton and its manufactures, hides and skins, prepared or unprepared, 8 per cent; alcohol, rum, fruits, and other products not otherwise specified, 10 per cent.

In addition to the export tax, the State virtually collects an import tax, though it is not so styled. Officially, it is called "impost on commercial establishments" and reads under the head of "internal taxes," Article III, section *a*:

> Commercial establishments which have a branch of business receiving directly or indirectly from foreign countries shall pay 100 reis (0.24 cent) per cubic decimeter (0.0353 cubic foot) for each volume and if receiving from other places within Brazil, 150 reis (0.36 cent) for each cubic decimeter (0.0353 cubic foot) and 10 per cent additional upon the value of all goods, hardware, drugs, medicines, or other merchandise, in accord with the table made by the State government, with the exception that this tax shall not be collected upon sacks destined for the export of sugar.

The table mentioned contains 116 classes of articles, arranged alphabetically from absinth to whisky and including all varieties of merchandise and food stuffs.

Not only are foreign articles which must also pay a federal import duty taxed, but a difference is made in the value of some of these when they come coastwise and there is a national article which is cheaper; thus, national cognac is valued at 14.500 milreis ($3.48) per dozen bottles, and the foreign article at 36 milreis ($8.64); but, in general, all articles imported direct from foreign countries are taxed ad valorem in accord with the Brazilian consular invoice, which is required to be produced and to which are added the freight and other expenses.

Besides those already mentioned, there are the usual taxes on professions and industries, transfers of property, etc., and stamp taxes upon numerous classes of documents, etc.

The following table shows the revenue collected from exports for the year ended December, 1901:

Article.	Quantity.	Official value.		Tax.	Duties collected.	
		Milreis.		*Per ct.*	*Milreis.*	
Alcohol .....liters...	6,348	2,285.280	$502.76	10	228.528	$50.28
Beans .....kilograms...	1,320	264.000	58.08	10	26.400	5.81
Boards	.....	2,326.400	511.81	10	232.640	51.18
Castor-oil-seed bagasse, kilograms	59,760	3,667.200	806.78	10	366.720	80.68
Castor oil:						
Refined .....liters...	326,500	65,300.000	14,366.00	10	6,530.000	1,436.60
Unrefined .....do.....	50,471	23,623.400	5,197.15	10	366.720	519.71
Cattle	.....	6,391.000	1,406.02	10	639.100	140.60
Cocoanuts (fruit).....	.....	28,250.000	6,215.00	10	2,825.000	621.50
Cocoanut oil.....liters...	850	595.000	130.90	10	59.500	13.09
Cotton:						
In bales..kilograms...	3,657,370	2,268,773.046	499,130.07	8	181,501.843	39,930.41
Manufactures..do.....	71,897	110,199.620	24,243.92	8	8,815.969	1,939.51
Cotton-seed meal..do.....	669,740	13,494.800	2,968.86	10	1,349.480	296.89
Corn .....do.....	3,218,498	129,174.050	28,418.29	10	12,917.000	2,841.83
Corn meal, etc.....do.....	33,465	1,160.250	255.26	10	116.025	25.53
Cigars, cigarettes.....	.....	689.500	151.69	10	68.950	15.17
Flour, manioc, kilograms	14,400	1,210.000	266.20	10	121.000	26.62
Fireworks.....	.....	13,338.748	2,934.52	10	1,333.874	293.45
Hammocks, ordinary.....	.....	4,749.000	1,044.78	8	379.920	83.58
Hides.....	.....	65,649.500	14,442.89	8	5,251.960	1,155.43
Hoofs, ox.....kilograms...	1,416,924	146.240	32.17	10	14.624	3.22
Horses	.....	632.000	139.04	10	63.200	13.90
Leather, sole.....	.....	1,703.000	374.66	8	136.240	29.97
Molasses.....liters...	8,080	752.000	165.44	10	75.200	16.54
Mats, palm.....	.....	278.000	61.16	10	27.800	6.12
Oakum.....kilograms...	5,477	2,053.300	451.73	10	205.330	45.17
Rice:						
Hulled .....do.....	233,038	32,208.320	7,085.83	10	3,220.832	708.58
Unhulled .....do.....	62,460	3,117.200	685.78	10	311.720	68.58
Rubber, mangabeira, kilograms	3,609	7,405.000	394.59	10	740.500	39.46
Rum .....liters...	237,206	45,925.900	10,103.70	10	4,592.590	1,010.37
Salt, crude...kilograms...	11,535,626	129,473.856	28,484.25	8	10,357,908	2,278.74

Article.	Quantity.	Official value.		Tax.	Duties collected.	
		Milreis.		*Per ct.*	*Milreis.*	
Shoes		4,063.300	$893.93	10	406.330	$89.39
Skins.....kilograms...	41,873	28,607.100	6,293.56	8	2,288.568	503.48
Sugar.....do.....	29,313.714	5,807,588.072	837,669.38	7	266,531.165	58,636.85
Swine		48,792.560	10,734.36	10	4,879.256	1,073.44
Ticum fiber...kilograms...	3,609	7,405.000	1,629.10	10	740.500	162.91
Tobacco .....do.....	835	958.000	210.76	10	95.800	210.76
Vines for binding		404.500	88.99	10	40.500	8.90
Vinegar, national..liters...	210	57.400	12.63	10	5.740	1.26
Wax, crude...kilograms...	2,150	1,290.000	283.80	10	129.000	28.38
Whetstones.....do.....	24,060	700.000	154.00	10	70.000	15.40
Wool.....do.....	660	264.000	58.08	10	26.400	5.81
Wine, caju.....liters...	720	720.750	158.57	10	72.075	15.86
Not enumerated		5,612.700	1,234.79	10	561,270	123.48
Total		6,865,687.592	1,510,451.28		520,158.012	114,434.76

Recapitulation showing destination and total value of exports for the year 1901.

Place of destination.	Value.	
	Milreis.	
Alagoas	313,829.550	$69,042.50
Bahia	678,298.228	149,225.62
Ceara	36,665.250	8,066.36
Hamburg	145.640	32.04
Liverpool	7,075.420	1,556.59
Minas	2,590.000	569.80
New York	190,449.900	41,898.98
Para	57,384.500	12,624.59
Parana	13,230.120	2,910.63
Paranagua	8,606.000	1,893.32
Pernambuco	648,432.080	142,655.06
Portugal	5,732.500	1,261.15
Rio Grande do Sul	9,477.640	2,085.08
Rio de Janeiro	4,817,192.470	1,059,782.34
Santos	120.000	26.40
Santa Catharina	15,172.064	3,337.85
Victoria	19,926.790	4,383.89
In transit	11,359.440	2,499.08
Total	6,865,687.592	1,510,451.28

HENRY W. FURNISS,
Consul.

BAHIA, *April 5, 1902.*

PRODUCTION OF SUGAR IN SERGIPE.

The most important product of the State of Sergipe is sugar, and in its manufacture more than one-half of the population is engaged. It is impossible to give the extent of land under cultivation, because no statistics have been compiled on the subject, but, estimating the acreage by the yield of sugar, it must cover at least 15,000 acres.

A large part of the State is suitable for cane production, but the cultivation is limited to the numerous valleys and the land adjoining

the rivers, to the south and east of the mountainous chain traversing the center of the State from northeast to southwest. The land in this section is very fertile, and though parts of it have been in constant use for a long series of years, yet to-day it is capable of large production. With proper rotation of crops, fertilization of land, and with modern agricultural implements to replace the crude hoe and knife now used, the yield would doubtless be phenomenal. As it is, with scarcely any cultivation or attention worthy of mention, cane once planted yields on an average from four to six crops in successive years, while I have been shown lands upon which good cane is growing from a planting of fourteen years ago, though of course this is the exception.

In years gone by, when sugar was higher in price, this section was most prosperous. Considerable money was spent in erecting houses for the plantation owners, and every large planter had his own mill, retinue of servants, etc.; but as sugar has dropped lower and lower in price, more and more economy has had to be exercised.

In the State of Sergipe, there are 671 sugar factories, 269 of which in some way utilize steam as power, 13 are run by water, and 389 by animal power. Of those using steam, about eight are more or less modern vacuum-pan factories, while the others only employ steam to grind the cane and boil their juice to sugar by the old-fashioned open-kettle-train process. All of those run by water and animal power make sugar by this method.

The largest and best equipped sugar factory is the Engenno Central, near Riachuelo. Riachuelo is a small town about 35 kilometers (21.7 miles) above Aracaju, upon a branch of the Sergipe River, which is navigable for small boats at flood tide. The factory is distant about 6 kilometers (3.7 miles) from Riachuelo, at which point it embarks its sugar for Aracaju. It is situated in the heart of the best cane section of the State and owns about 300 hectares (741 acres) of land, upon a small portion of which it plants. It buys vast quantities of cane from near-by planters.

The factory has 22 kilometers (13.6 miles) of railroad, 84 cars, and 3 engines to convey cane from the fields and to the different stations for delivery. Two of the locomotives and about all of the cars are of American manufacture.

At this factory there was ground, in the season of 1900–1901, 25,204 tons of cane, from which 1,970 tons of sugar and 209,280 liters (54,986 gallons) of rum and alcohol were made. It expects to grind, during the season of 1901–2, 45,000 tons of cane, from which it is estimated it will make 36,000 tons of sugar. On account of the low prices of rum and alcohol, coupled with the high federal and State taxes, it has been burning its molasses with the bagasse rather

than distill. There is no market whatever for molasses or sirup as such, its use in the household being practically unknown.

The factory has good machinery, but does not seem to be getting a sufficiently high percentage of sugar from the cane. The cane of the locality contains from 13 to 15 per cent of sugar, but the factory succeeds in obtaining only 8.2 per cent. The average density of the juice is 11.2 Baumé, while the juice extracted averages about 62 per cent of the weight of the cane.

It has American centrifuges, pumps, lathes, plate-bending machines, and numerous small tools; but its engines, mills, triple effect and vacuum pans and machinery pertaining thereto, clarifiers, sedimenters, etc., are of Dutch manufacture; and there is now a Dutch engineer there, taking measurements for an American-system slicer and chopper, a Dutch mill, and other machinery for the diffusion process, which it is the intention of the company to introduce at the close of the present season. With this apparatus, the managers hope to recover at least 11 per cent of the sugar of the cane.

This factory, which is a bonded corporation with head office at Rio de Janeiro, is the only one which will pay this year, and is the only one I could hear of that contemplated improvements or was planting. It is the only estate which has adopted modern methods of farming. It has a graduated French agriculturist in charge of its plantations, and during the five years he has been there, with less ground under cultivation, he has increased the yield from 4,000 tons to 12,000 tons this year and 15,000 tons in good years. He has made accurate meteorological observations, has studied the soil and varieties of cane, and is doing the kind of work which would help much to build up Brazil's agriculture, if other estates would employ similar men.

He informs me that the varieties of cane grown thereabouts are Louzier de Santa Barbara, Pitu (which looks like Port Mackay, but which he believes should be a variety of Bourbon), and Salangor. Some years ago, Canninha was the favorite cane of that section because of its great sugar-producing qualities, but it was discarded because of a disease which appeared among it. He is now carefully replanting it. In other portions of the State, poudre d'or, mestica, verde grossa, and bambu are raised. I can not find that in any case the cane has become diseased.

I am pleased to note that he has some of our plows and harrows in use, but I believe that we have implements much better suited to existing conditions than those which his company possesses.

The best time for cutting cane is from October to April, particularly as the roads through the plantations become so muddy as to be impassable, even should there be clear days in other months.

The custom is to commence in October and grind until the rains prevent further work.

In my trip through the State, I visited fifty-four sugar factories and was surprised to note the waste. I could easily see why, with the exception of the Engenno Central, sugar in this section seldom does more than pay and this year is causing a great loss.

To commence at the beginning, the cane is not properly cultivated, and labor-saving methods and agricultural implements are either unknown or ignored. There are no good means of transportation for either cane or sugar, it frequently costing 500 reis (12 cents) to get a sack of sugar to market, and that, together with the 700 reis (16.8 cents) paid for the bag, leaves at best 2.300 to 2.800 milreis (55 to 67.2 cents) for 60 kilograms (136 pounds) of sugar, which can not be made at that price, unless the cane is a free, wild product.

Again, there are a number of small factories close together, and most of these have poor mills, which, if run by steam, have leaking pipes, engines in bad condition, boilers in worse order, and open trains of kettles for boiling. There are few of these factories which recover 6 per cent of sugar, and that is muscovado, the best of which will test 84 to 89. In most cases, the bagasse from these mills is so wet with juice that it becomes necessary to spread it in the sun to dry before it can be fed into the furnaces. The sugar is crystallized in wooden molds of the regulation pattern.

The proper procedure would be to do away with the multitude of mills, and for each group of ten to erect central cooperative factories, which would give a larger percentage of sugar and would otherwise economize.

From information gathered from the great number of plantations I visited, I have compiled the following tables showing the cost of cane culture on 1 tarefa—66 by 66 meters, or about 0.72 acre:

New plantation.

Description.	Cost.	
	Milreis.	
Clearing ground and planting	95	*$22.80
Cane for planting, 4 tons at 5 milreis ($1.20) per ton	20	4.80
Cleaning four times, at 5 milreis ($1.20) for each cleaning	20	4.80
Cutting 30 tons, yield first year, at 400 reis (9.6 cents) per ton	12	2.88
Transportation to mill, 30 tons, at 600 reis (14.4 cents) per ton	18	4.32
Total expenses of first year's crop	165	39.60

*Taking the present market value of the milreis at 24 cents.

This would make the actual cost of production of 1 ton of cane 5.500 milreis ($1.32), which is a very conservative estimate; but for this the planter this year receives 4.500 milreis ($1.08), or a loss of 1 milreis (24 cents) a ton.

Second year's growth.

Description.	Cost.	
	Milreis.	
Cleaning and other preparation	65	$15.60
Cutting 25 tons at 400 reis (9.6 cents) per ton	10	2.40
Transportation, 25 tons at 600 reis (14.4 cents) per ton	15	3.60
Total expenses	90	21.60

This gives the actual cost of production for the second year and thereafter at 3.400 milreis (81.6 cents) per ton, which would seem to be a profit of 1.100 milreis (26.4 cents) were there not other things to be taken into consideration.

In the above figures, nothing is calculated as interest on capital invested in land, animals, wagons, etc., but the following would be a fair estimate: Land producing from 25 to 30 tons of cane per year is worth at least 72 milreis ($17.28); proportionate value of animals, and wagons for same, 73 milreis ($17.52). Calculating money to be worth 10 per cent (a low rate of interest for these times), each of the 30 tons should yield a profit of 243 reis (5.8 cents) to meet the interest charge, and each of the 25 tons should yield a profit of 294 reis (7 cents).

The lands considered in these deductions yield more than the average lands of the smaller owners, but as the expenses would be the same in either case, this would lower profits. It must also be remembered that all the figures given are calculated on the price of work to-day, while earlier in the season labor was at least 30 per cent higher and the initial cost of planting much of the cane that is now being harvested was more than double what it is at present.

The following tables, also compiled by me from information received at many factories in Sergipe, show the cost of production of sugar for the season of 1901–2:

Description.	Cost.	
	Milreis.	
Ton of cane	4.500	$1.08
Labor of sugar making	1.200	.288
Firewood	.900	.216
Total	6.600	1.584

One ton of cane at a good factory will produce 6 per cent of sugar, or 60 kilograms (136 pounds—1 bag), but the average production of the smaller and less careful factories is not more than 55

kilograms (121.2 pounds). Taking the maximum production as a basis, we have the following additional expenses:

Description.	Cost.	
	Milreis.	
Cost of manufacture of 1 bag—60 kilograms (136 pounds)	6.600	$1.58
Cost of sack	.700	.168
Freight to market	.500	.12
Total cost of bag delivered	7.600	1.868
Less value of molasses remaining	.630	.151
Net cost of sugar	6.970	1.717

For a bag of 60 kilograms (136 pounds) of sugar, the maker has received from 3.500 to 4 milreis (84 to 96 cents) at best, and, taking the higher price together with the 630 reis (15 cents) obtained from the molasses, he has received 4.630 milreis ($1.11) for what has cost him 6.970 milreis ($1.717), or a loss of 2.340 milreis (60.6 cents) on each bag. In other words, his cane, which has cost him 3.400 milreis (81.6 cents) to grow, if it is other than first year's growth, has a value to him of only 2.180 milreis (52.3 cents).

A few years ago, all of the molasses produced in Sergipe was distilled into rum and alcohol, which found a ready market at good prices. Two years ago, a pipe of 1,680 liters (1,775.8 quarts) brought 150 to 175 milreis ($36 to $42); to-day, the same quantity is a drug on the market at 30 milreis ($7.20).

Connected with all of the larger mills are distilleries, but the greater part of them have not been working this year, because of the low price of rum and alcohol. The smaller mills sell their molasses on the premises for the price given, and it is taken to distilleries in skins holding about 40 liters (42.2 quarts) each, two constituting a cargo for a pack animal.

Most of the mill owners raise their own cane. It is only the large central factories that buy cane, and they purchase under contract made the year before and upon a sliding scale, the price of cane depending upon the average selling price of sugar at Rio de Janeiro for the fifteen days previous. With what the central factories raise and have contracted for, they have all they can grind in a season, so the smaller factories, which are growers of cane, are forced to grind even at a loss, as the cane can not be sold, and it must be cut to give a crop next year. In some instances, owners have set fire to their fields rather than incur the expense of cutting the cane; but it would seem to have been better business for them to have made sugar, as then the real loss would have been less, and, after all, the

cane was not burned to the ground and will have to be cut to give future crops.

The outlook for sugar seems to be most gloomy, and considerable apprehension is felt as to the result of our reduction of duties on Cuban sugar, as this section has been a large exporter to the United States, not less than 97,020 bags of 60 kilograms (136 pounds) each having been sent there this season.

The greater part of the sugar shipped to the United States this year was bagged direct from the sugar molds. It contained a large percentage of molasses, and tests from 5 to 8 lower than does the same sugar sun dried, which is the usual method of preparation. It is true that the loss of weight in transit from leakage of molasses is great, but the price of sugar is in proportion to the loss. Besides, the sugar will test higher in our country than it did here, while sun-dried sugar seems to absorb moisture after its arrival in the United States and tests so much lower as a result that there is frequently a large loss to those unacquainted with these facts.

The State of Sergipe desires to increase the exportation of sugar to foreign ports, rather than have it all go to Rio de Janeiro, as was at one time the case. It has made a differential export duty in favor of sugar proven to have been shipped to foreign countries. Under such conditions, the sugar pays 5 per cent on the value, while when sent to other Brazilian ports the tax is 7 per cent.

The export of sugar for 1901 was 487,396 bags, weighing 28,313 metric tons, having an official value of 3,807,588 milreis (about $900,000), and paying 266,531 milreis ($60,000) in export tax.

There is no reason why sugar should not pay here even now, if when prices were good attention had been paid to increasing yield and installing better methods of extraction. With 6 per cent and less of sugar from each ton of cane, the business could not be expected to pay anywhere, but with 10 per cent and more it would pay in almost any place where fuel and water were abundant.

AMERICAN MACHINERY WANTED.

It is surprising to see how little is known of American sugar-working machinery and methods, and during my trip I had many requests for information.

The machinery for the greater number of the smaller mills and for some of the larger ones is from Glasgow, but is of old pattern and in many cases has been badly treated. That it is of British manufacture is to be expected, as the chief repair shops of the section have been run for years by Englishmen, and they have been interested in the orders. Recently, a couple of German shops have been opened and they are already introducing German machinery.

With a slight increase in the price of sugar, there should be a

chance for some of our perfected apparatus, and now is the time to call the attention of the planters and mill owners to our products, that they may be well acquainted therewith when there is a revival of prosperity in the industry.

H. W. FURNISS,
Consul.

BAHIA, *April 5, 1902.*

SUGAR INDUSTRY IN BAHIA.

Like other States in Brazil where the raising of cane and the manufacture of sugar constitute a considerable industry, the State of Bahia, with its numerous factories, is experiencing its share of the loss suffered by the industry this year.

The depression commenced about two years ago, but as the profits were then sufficient little was thought of the future, and when the final drop in price came this season both the grower and manufacturer were as surprised as if it had not been foreshadowed.

The principal sugar-cane region in this State is within a radius of 30 miles from Bahia and is located chiefly upon the tide-water rivers which flow into Bahia Bay. The factories are usually considered as forming three groups, consisting of eighteen vacuum-pan plants, capable of producing Demerara, white and yellow crystals, and numerous small ones with trains of open kettles capable of making only crude sugar, muscovado, wet or dry.

The sugar season in this district is from October to April, but is extended over a greater period if rain does not interfere with transportation. This year, there is still enough cane in most sections to last at least a month longer, but, judging from the rainfall the present week, the rainy season has already set in and operations will soon have to be brought to a close.

Some of the large factories rely entirely upon the purchase of cane from near-by planters, though most of them plant for themselves. When cane is bought, it is upon a sliding basis varying with the price of sugar at Bahia, and in the following manner: When white sugar is worth 200 reis (4.8 cents*) per kilogram (2.2 pounds), the price of cane is 5 milreis ($1.20) per ton, and for every 10 reis (0.24 cent), up or down, in the price of sugar there is a difference of 300 reis (7.2 cents) in the price of cane. This price was fixed after the month of November of the present season, but some factories pay a slight amount more or less.

In accordance with the rates adopted, the sliding scale is of benefit to the factories only when the price of sugar is 200 reis (4.8 cents) or more per kilogram (2.2 pounds), for every increase of 10 reis (0.24 cent) in the value of a kilogram of sugar would mean an increase of

*Taking the current market value of the milreis at 24 cents.

from 600 to 750 reis (14.4 to 15.6 cents) in the value of the sugar which a ton of cane would produce, while the additional cost of the cane would only be 300 reis (7.2 cents), or a profit of from 300 to 450 reis (7.2 to 10.8 cents). On the other hand, a diminution of 10 reis (0.24 cent) in the price of a kilogram of sugar would mean a decrease of from 600 to 750 reis (14.4 to 15.6 cents) in the value of the sugar which a ton of cane would produce, or a loss of from 300 to 400 reis (7.2 to 9.6 cents).

It would seem that there might be a better arrangement as to cost of cane, whereby both parties might profit as a result of increase and lose in like ratio in case prices should go the other way.

In Bahia, there has been little effort made to properly cultivate the cane. Modern agricultural implements are sadly wanting, the chief reliance being placed in hand culture with a hoe. A few large planters own plows and harrows, but it is with difficulty that they are able to get their laborers to work with them, and at one large plantation I was shown plows the stocks of which have rotted away as they have lain in the fields unused.

It is true that one factory owner imported a traction engine and plows, but he has accomplished little. It is impracticable to try to plow up and down hills and in valleys where the very weight of a locomotive would prevent its operation. What is needed here most is a better class of field labor. On account of the natural conditions (which were fully explained in my report upon the sugar industry of Sergipe,* and apply here as well), the country possesses too many resources, and life is consequently too easy. For this reason, laborers follow their own inclination as to when, where, and how much they will work, and never do more than is absolutely necessary. Our sulky plows and cultivators, which can easily be drawn by a couple of mules or horses, and our harrows and other modern implements would do much to improve present conditions. There is great need for well-equipped schools, to give instruction in theoretical and practical agriculture.

In Sergipe, which is essentially a sugar-producing State, the farmer usually has his own sugar factory; here, he can sell his cane to a central factory and is not forced to grind, as is the case in Sergipe.

The factories of Bahia can be divided into two classes, the central ones, with vacuum pans and centrifuges, and the small, open-kettle-system factories.

The former may be subdivided into factories in which interest on the capital invested is guaranteed by the Federal Government, factories which the State has aided by loans, and factories which depend upon private resources.

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*See page 577, *ante;* also published in ADVANCE SHEETS No. 1352 (May 27, 1902).

The first group is composed of two complete and two incomplete factories, the greater part of the stock of which is owned in England, while mortgages on the factories are in the hands of Dutch investors. These factories have never been very successful, which in one case is due to location in a section where little cane is produced, and in another to bad management. The first mentioned has not been working for two seasons and is in need of repairs which would almost amount to rebuilding, and the other is in almost as bad a condition, though it is working under lease this year. These two factories have not paid expenses for several years, yet I can not find that they have made requisition upon the Federal Government for the amount guaranteed them. Both factories have exclusively Scotch machinery.

The incomplete factories represent only buildings, both of which are much better located than the factory first mentioned. If completed, they would doubtless pay, as they could be supplied by a rich cane section.

The second group is composed of three factories, all located in the Santo Amaro district. They have been built within the last two years, and I understand they are in good condition and have modern machinery.

I have visited one of these factories, which worked for the first time this year. It is situated in a rich cane section on the Santo Amaro Railroad—a State line—has good buildings and an abundant water supply. One of the mills and the engine for the same, the triple effect and vacuum pans and apparatus connected therewith, the filter presses, sedimenters, and tanks were purchased from an abandoned mill in the vicinity of Rio de Janeiro, and are not as modern as they should be for a factory mounted this year. The second mill and engine are new. They have also new continuous clarifiers, water-motor turbines, patent sugar mixers, and pulverizers. Several of the pumps and the new clarifiers are of United States manufacture, and are giving satisfaction.

This factory has been in operation too short a time (about three months) to permit any prediction as to its probable success; but it would seem that its equipment was a little too expensive, and that some of our more modern methods might have been introduced to advantage in its installation.

One of this group of factories has exclusively German machinery.

The third group comprises thirteen factories, variously located. I have visited the greater number of them and find them in all conditions. In some instances, the owners have been improving their plants from year to year and have given the machinery proper attention, while in others the plants have run down and are on the verge of ruin.

Some of the factories of this group are being run by Scotchmen, who seem to be very successful sugar makers and engineers. Where they are given a free hand, with their Scotch tenacity and shrewdness, they are making a small profit for the owners, in spite of the ruinous prices of sugar, molasses, and rum. In other instances, good factories are being run by laborers who are not sufficiently acquainted with the theory and practice of sugar making and are not strictly economical, and a loss is the result.

Most of the central factories have railroads for carrying cane, and I am pleased to note that some of the engines and many of the cars are of American manufacture.

It is impossible to give the number of small factories with open-kettle boilers, as no statistics have been compiled for this State; but they must number into the hundreds and include all kinds, from those with animal power to those with steam, as a motive force for the mill. Many of the steam-power mills have not been working this year, preferring to sell their cane to the central factories; but the smaller ones are far in the interior, and have had to work or lose all.

The reason our machinery is not more in use is because it is practically unknown, or because when an owner reads of our results he is unable to procure information as to price, etc. He writes abroad to the firms which have supplied him with his antiquated apparatus, and they furnish him with "just as good, or better," but seldom with the American. This was recently the case with a continuous clarifier, which is failing to give good results.

The best method to introduce our machinery would be to send into this section a man who is conversant with modern machinery and methods, and who can speak Portuguese or Spanish. If that can not be arranged, it would be well to have some Bahia commission house assume the agency of our machinery, or at least keep catalogues and other data which might be consulted when occasion warrants. It is true that present conditions do not give hope for any great sales in the near future, but when the sugar industry revives we should be in the field for the new machinery which will then be purchased.

I can supply the names and addresses of all of the central and of some of the smaller open-kettle factories. To the first class, little could be sold; but to the second class much might be, though they are too scattered for me to give personal investigation. In any event, catalogues and circulars in English are undesirable, except for reference at this office. Catalogues should not be sent for distribution unless printed in one of the Latin languages—preferably Portuguese or Spanish.

From figures given me at several of the central factories, I have

compiled the following table, showing the cost of the production of Demerara sugar testing 96°:

Description.	Cost.	
	Milreis.	
Cost of cane per ton	4.500	$1.08
Freight on same to factory	.500	.12
Wood and other fuel	1.350	.324
Sugar makers and laborers	1.250	.30
Diverse	.100	.024
Freight to Bahia	.700	.168
Sack	.700	.168
Necessary repairs in factory	.700	.168
Commissions in Bahia	.230	.055
Total cost of 75 kilograms (165 pounds) of sugar	10.330	2.407

A ton of cane will produce 75 kilograms (165 pounds) of Demerara—a high average—and this sugar selling at 158 reis (3.79 cents) would bring 11.850 milreis ($2.84). The molasses from a ton of cane is worth 1.300 milreis (31.2 cents), or a total of 13.150 milreis ($3.15) from the product of 1 ton, which cost 10.330 milreis ($2.40); profit, 2.720 milreis (75 cents) per ton.

In this calculation, the salary of manager, percentage of depreciation of factory, and interest on capital invested are not taken into account.

A ton of cane gives from 30 to 40 liters (31.7 to 52.8 quarts) of molasses, which sold in November for 32 milreis ($7.68) per pipe of 800 liters (845.3 quarts), but now has a price of 20 milreis ($4.80), with no buyers.

The land in the Bahia cane district is divided into three classes—massape, salao, and areia. The first is that variety of soil which is almost black in color, and when wet becomes a sticky mass. This is the most productive and sells at 70 milreis ($16.80) per tarefa (0.72 acre).

Salao is a poorer grade of land, chiefly found on the hillsides, and seems to be an adulteration of massape with sand or common clay; it sells for 50 milreis ($12) a tarefa.

Areia is the least productive grade cultivated, and, as the name suggests, is composed chiefly of sand.

The yield per tarefa this year in the Santo Amaro district has been from 20 to 30 tons, while in the Iguape region only from 16 to 25 tons have been produced, and in the other sections the output has been even less.

This year, the cane has not been particularly good, the juice testing 7.5° to 8° Baumé during the first part of the season and now testing only 9° and 10° Baumé.

The following table shows the cost of planting in Bahia per tarefa (0.72 acre):

New plantation.

Description.	Cost.	
	Milreis.	
Clearing land	80	$19.20
Burning brush	4	9.60
Opening ground	10	2.40
Planting	10	2.40
Cane for planting, at 4.500 milreis ($1.08) per ton	18	4.80
Cleaning four times, at 6 milreis ($1.44)	24	5.76
Cutting 30 tons, at 400 reis (9.6 cents) per ton	12	2.88
Transportation, 30 tons at 2 milreis (48 cents) per ton	60	14.40
Net cost first year on 1 tarefa	218	61.44

With a yield of 30 tons, this would make each ton cost 7.200 milreis ($1.728); but similar cane can be purchased for 4.500 milreis ($1.08), therefore the farmer has lost 2.700 milreis (64.8 cents) per ton. He has in reality lost more, as the calculation is made upon the present cost of labor, and there has been a great reduction in prices this season.

Cost of second year and thereafter.

Description.	Cost.	
	Milreis.	
Cleaning cane and care of same	60	$14.40
Cutting 25 tons, at 400 reis (9.6 cents) per ton	10	2.40
Transportation of 25 tons, at 2 milreis (48 cents) per ton	50	12.00
Total cost	120	28.80

This would make the actual cost of a ton of cane in the second year and thereafter 4.800 milreis (97.9 cents), or a loss of 300 reis (7.2 cents), as similar cane can be purchased for 4.500 milreis (97.2 cents).

In these figures, I have not taken into account the interest on money invested in lands and equipment, which would bring the loss to a higher figure.

The sugar industry in this State has been favored by a low export tax. In fact, no sugar except crude pays any tax, and crude sugar only pays 1 per cent upon value.

H. W. FURNISS,
Consul.

BAHIA, *April 19, 1902.*

THE RUBBER CROP IN BRAZIL.

The shipments of rubber from the Amazon Valley were, up to April 30 last, a few hundred kilograms in excess of the entire crop of the season of 1900–1901. The total increase, however, will not be known until the remaining shipments are made in May and June. The best-informed rubber buyers here estimate that the total yield will be about 30,000 tons.

Owing to hard times, low prices, and certain unfavorable local conditions, there are various opinions as to whether the steady increase in the output of rubber during the past few years will be maintained in 1902–3. It is generally believed, however, that the rapid development of the new rubber districts on the Upper Amazon River and its affluents will more than make up for any falling off from these causes. I am informed that already many large bands of rubber gatherers are organizing, and that preparations on a large scale are being made for harvesting next season's crop.

K. K. KENNEDAY,

PARA, *May 7, 1902.* *Consul.*

MARKET BUILDING IN RIO DE JANEIRO.

Consul-General Eugene Seeger reports from Rio de Janeiro, May 16, 1902, in regard to the construction of a new market building in that city. A local syndicate has received a concession for that purpose, with valuable privileges, and is trying to obtain the necessary funds. Specifications and estimates have been handed the consul-general, with the request that they be submitted to United States capitalists, for the purpose of interesting them in this enterprise. The full text of the specifications, etc., has been filed in the Bureau of Foreign Commerce, where it may be consulted by parties interested. A summary of the matter is given below:

The area granted by the prefecture covers 242,190 square feet. The use of the market is conceded for fifty years after completion; it must be finished within three years. Free entry will be permitted to all material for construction.

The concessionnaires must pay the municipality 100,000 milreis* ($24,000) per annum during the construction of the market and 200,000 milreis ($48,000) per year thereafter during the contract. There must also be paid 1,000,000 milreis ($240,000)—300,000 milreis ($72,000) of this when the ground is handed over, 300,000 milreis ($72,000) when the market is completed, 200,000 milreis ($48,000) in a year, and an equal amount in the following year.† It is calculated that the demolition of

* The current value of the milreis is 24 cents. It should be noted that exchange fluctuates widely.
† The first 300,000 milreis ($72,000) has already been deposited.

the old buildings, the construction of new ones, and the fees, etc., to be paid until the market is completed (including the 300,000 milreis first deposit) will cost 4,583,000 milreis ($1,099,920).

The present market consists of old and unstable sheds, where the commodities that supply a population of 700,000 people are most inconveniently displayed. Nevertheless, it yields a net return of more than 600,000 milreis ($144,000) per annum. The concessionnaires have already received demands for space in the new market from the chief commercial firms which practically cover all the area granted. It is believed that the investment will give a handsome return on the capital invested.

PROPOSED LAW AFFECTING INSURANCE COMPANIES IN CHILE.

A measure seriously affecting foreign insurance companies doing business in this country has just been introduced in the Chilean House of Deputies, with a strong probability of becoming a law during the present session of Congress.

The bill provides that no foreign insurance company may transact business or appoint agents in Chile without the express authority of the President of the Republic. Infringers of this prescription are to be liable to fine and imprisonment. To obtain the required authority from the President of the Republic, it will be necessary, first, to prove that the company has been founded in conformity with the law of the country in which it is established; second, to deposit in the office named by the President the sum assigned to it according to its class. In the permit will be specified the quota of the total amount of premiums to be carried to the reserve fund. This quota must be invested in real estate in Chile or in Chilean stocks, which must represent not less than 10 per cent of the annual amount of the premiums until the reserve is completed.

Fire and life companies whose capital and accumulated funds amount to $500,000 will be considered as of the first class; $300,000 and upward, second class; and under $300,000, third class. Maritime companies will be considered of the third class.

First-class companies will be required to deposit, according to the provisions of the bill, $300,000; second-class companies, $200,000; and third class, $100,000. These deposits must be made in gold currency or in internal bonds, and they may not be withdrawn from the custody of the State without six months' notice and the presentation of proof that the company has no longer any liabilities in the country. The deposits may not be attached nor retained, nor are they liable to income tax.

The fire companies will pay a yearly tax of 6 per cent on the total amount they receive for premiums; maritime companies will pay 2

per cent; and life companies will pay 5 per cent on the first premium and 1 per cent on all subsequent premiums.

Foreign companies will be considered as domiciled in Chile and subject in every way to the tribunals of the country. No insurance company may be established with a capital of less than $100,000, and without assigning at least one-fourth part of the profits to a reserve fund until the amount of this reserve reaches $200,000. Insurance companies will be required to send semiannual reports and balances to the Ministry of Finance; the President of the Republic is to have power to appoint inspectors of books and accounts; and the companies are to afford inspectors every facility for examining the records, under penalty of $1,000. The permit of any company may be canceled for any infraction of the law, which is drafted to go into effect July 1, 1902.

R. E. MANSFIELD,
Consul.

VALPARAISO, *April 25, 1902.*

MANUFACTURE OF IRON IN NEW SOUTH WALES.

The revival of the discussion as to the practicability of making iron at Sydney from native ores in sufficient quantities and variety to meet the demands of the market has led me to investigate the attempts made in the past to develop the iron industry in New South Wales.

The first attempt to smelt iron ores in this State of which I find a record was at Mittagong, 77 miles south of Sydney, in about 1850. The works shut down in 1855, owing to the operations not being profitable, and remained idle, with intervals of activity, until 1865, when the foundry produced a number of cylinders for a bridge and girders for houses in Sydney, cast direct from the blast furnace; but the works were again shut down, because the cost of production exceeded the value of the product. The pig iron produced cost at one time $24 per ton. The property changed hands several times, and various efforts were made to produce iron, but the works were finally abandoned, owing largely to the lack of good and cheap fuel. A seam of coal 8 feet 11 inches thick was found at a depth of 642 feet.

The Eskbank Iron Works are near Lithgow, 96 miles west of Sydney, and were first charged in 1877. The blast furnace was of the best class, and it produced 100 tons of pig iron per week. Coal and "clay band" ore were adjacent to the furnace. The brown hematite was brought by rail 70 miles; red siliceous hematite and limestone, 14 miles. The company had also a foundry and all necessary appliances for converting pig iron into bar iron.

Pig iron has not been produced by these works since 1882, but the rolling mills have been operated continuously, making bar iron from scrap.

I am informed that no other experiments in iron making have been made in all Australia.

NEW SOUTH WALES IRON ORE.

There are twelve varieties of ore enumerated as occurring in this State, in widely separated districts. The Government recently appointed Mr. Jacquet to carefully examine all the principal deposits, in order to determine the feasibility of entering upon a new smelting experiment. So far as examined, the Mittagong field appears to contain less than 1,000,000 tons. There are 1,000,000 tons about Picton and 1,500,000 tons about Goulburn. Mr. Jacquet, however, has reported that other deposits within reasonable distance of Lithgow show that there is sufficient material available to justify the establishment of the iron industry in this State.

Probably the most extensive deposit of iron ore in New South Wales is near Cadia, 192 miles west of Sydney. Mr. Jacquet estimates the deposit near Orange to be about 39,000,000 tons, and believes that it could be mined and transported 95 miles to Lithgow, where the coal is found, at 10s. ($2.43) per ton; the cost of smelting would be £2 10s. ($12.16) per ton of pig iron, making a total cost of £3 ($14.59). The ore is thought to be suitable for the manufacture of Bessemer steel.

There are many foundries in New South Wales, but the supply of pig iron is greater than the demand. The price ranges from 72s. to 90s. ($16.54 to $21.89) per ton.

Labor is perhaps the largest item in the cost of iron, and there is a strong tendency at present in this colony to fix the price of labor artificially.

It is now proposed that the Government shall undertake the development of the iron resources of New South Wales, with the hope of success under somewhat altered conditions.

I append a printed description of this proposed action.

ORLANDO H. BAKER,
Consul.

SYDNEY, *April 15, 1902.*

BIG IRON INDUSTRY FOR AUSTRALIA.

Without offering any opinion on the merits of the negotiations for what has come to be known as the "steel-rails contract," it is reasonable to assume from existing conditions that the opportunity is now open to secure the establishment in Australia of a big iron foundry with unlimited possibilities of expansion. It is from the Blythe River Iron Mines, at Burnie, Emu Bay, on the north coast of Tasmania,

that the iron ore to be used in the manufacture of the steel rails is to be drawn. These are considered the only mines suited as a source of supply for such an undertaking. It is believed that there are 25,000,000 tons of the highest class of hematite iron in sight.

As to the best location for the establishment of the permanent foundry, the possibilities of Tasmania, Melbourne, Sydney, Newcastle, and Kembla were carefully canvassed. To the commercial mind, Sydney presented the best opportunities, all other things being equal.

The site on the Parramatta River is convenient for shipping, and it is near the railway. The scheme is to erect works that would turn out 150,000 tons of iron and steel products—rails, pig iron, sheet iron, beams, girders, etc.—per annum, and the capital would be £1,000,000 ($4,866,500). The capital is large, and the investors will not embark on the venture without some assurances. In Canada, there is a heavy duty and substantial bonuses to assist the industry. Here in Australia, there is a duty of from 20 per cent down to about 10 per cent, roughly speaking, on iron and steel manufactures. That might appear to be enough protection, but the proposed works would at first depend largely on the requirements of the Government, and the federal tariff scheme involves for State governments exemption from taxation in connection with material which they require for public services. Therefore, this concern asks not for a bounty or duty, but for a contract; that is, for a sure avenue of outlet for their products. Now, if this contract were based on prices which were unreasonable and unbusiness-like, it is safe to affirm that the proposal would not find favor with the people. The contract asked is for the supply of 200,000 tons, to cover a term of ten years.

It is estimated that the works will give employment to 4,000 hands. The wages and salaries would be £400,000 ($1,946,600) per annum. In the attendant industries, it is calculated that 2,000 persons would be employed.

The establishment of such works would help to make the State—and the Commonwealth—independent of outside aid in times of emergency.

COPYRIGHT LAW FOR SIAM.

In reply to several inquiries from America in reference to the protection of publications in Siam, the following copyright law is transmitted. This was passed some months ago, and has been translated into English by special request; and although it is not issued in this form as an official copy, the translation is reliable.

COPYRIGHT LAW.

When at the present time anyone writes an original work and such work finds a ready sale, others may reprint such work and sell the same, while the original author does not derive the benefit from it to which he is entitled. In foreign countries, laws have existed for a long time forbidding anyone to make extracts from, print, or sell books for which he has not received permission from the author, and the time has now arrived when also in the dominion of Siam authors should be protected against infringements.

His Majesty has therefore been pleased to decree, and decrees, as follows:

1. This law shall be known as the copyright law of 120.
2. This law shall come into force on the day of its proclamation.

3. If anyone composes a work in book form or in form of a pamphlet and conforms to the stipulations of this law, he will have a right to such work in the same way as if it were other property belonging to him.

4. The person having acquired such right to a work has the sole right to make extracts from the same, translate it into foreign languages, distribute or sell it, and no other person who has not received special permission (from the person having such right) may do so.

5. The copyright shall last for the lifetime of the author and for seven years after his death. If from the time the copyright has been acquired and seven years after the death of the author a full period of forty-two years has not elapsed, the copyright shall be in force for forty-two years, counting from the time the copyright has been acquired.

6. If the author dies before he has acquired copyright for a work, his heirs may ask for copyright, and such copyright shall be in force for a period of forty-two years, counting from the death of the author.

7. All books first printed and sold in the dominions of Siam may enjoy the privilege of copyright.

8. The copyright in educational books which are printed at the expense of Government shall rest with the Government.

9. For books printed and sold before this law has come into force, the following rules are laid down:

(1) If the author of the book died before this law came into force, no copyright can be granted.

(2) If the author is at the same time printer and seller of the work in question, he may acquire copyright within twelve months from the promulgation of this law.

(3) If the author, being still alive, has sold the right of printing and of selling such work to a third party, no copyright can be granted.

(4) If the author while still alive had come to an understanding with another person to print and sell the work in sharing profit, the author who wishes to acquire copyright must inform the printer and seller of his intention, and, if he agrees, the author may acquire such copyright. If the printer raises any objection, a court of law shall first give a decision on the benefit derived from such contract, according to law and custom, and it shall thereupon decide whether the copyright shall be granted.

10. All books for which copyright is to be acquired must be in print, and the author must present them to the registrar within twelve months after the completion and sale of the work. If the author died before he acquired copyright, the heirs must apply for such copyright within twelve months after the death of the author.

11. If the author wishes to make any alterations or additions to a work for which he has acquired the copyright, he may present his amended copy for registration.

12. The person wishing to acquire copyright shall forward copy of his work to the registrar for registration.

13. The registrar shall keep a book of all persons wishing to acquire copyright. If the work is entered in the register, the person wishing to acquire such copyright and the registrar shall sign such register, and such signatures shall be made in the presence of the two parties.

14. If a person has acquired the copyright from another person, he must produce the necessary proofs for such transfer before the official, and, if such proofs are found to be valid, an entry of such transfer shall be made; and only after such transfer has been registered shall the copyright be lawful for the person to whom it has been transferred.

15. The person having acquired copyright shall present one copy of his work to the King's library, one copy to the Vajirayana library, and one copy to the ecclesiastical library.

16. No person shall be allowed either to make extracts from and translate into any other languages or reprint or sell for his own benefit or without any pecuniary benefit books for which copyright have been acquired, and no person shall assist in selling such books which have been extracted, translated, or printed contrary to the law, unless he has received permission to do so by the person having acquired the copyright.

If any person commits an offense against the provisions of this law, the holder of the copyright may claim from the person so transgressing the law compensation in a law court, and all books which have been printed contrary to the provisions of the law shall belong to the person holding the copyright, and he may enter a claim against the transgressor for the handing over to him of all books in his possession; and in case the person transgressing will not do so, a claim can be entered against him for compensation or for contempt.

17. The following fees have to be paid: Five ticals ($1.50) for every registration; 5 ticals for every transfer of copyright. The money has to be paid by the person applying for the copyright or by the person asking for the transfer.

18. The royal scribe department is intrusted with the carrying out of this law.

HAMILTON KING,
Consul-General.

BANGKOK, *March 31, 1902.*

COAL AT VLADIVOSTOCK.

The varieties of coal used at this port and in this vicinity are, in the order named, Japanese, Sakhalin, and Cardiff; no American is employed.

The Japanese coal can be landed at Vladivostock at from 11 to 12 rubles ($5.66 to $6.18) per ton, including freight charges, which amount to 2.50 to 3 rubles ($1.29 to $1.55) per ton.

Cardiff coal, by far the best and most popular, costs c. i. f. Vladivostock from 40 to 45 rubles ($20.60 to $23.18) per ton.

Sakhalin coal, delivered at wharf, costs from 13 to 14 rubles ($6.70 to $7.21), including freight at 3.25 to 4 rubles ($1.67 to $2.06) per ton.

There are several local coal mines owned by private firms, but the product is not of a superior character; the best is said to be the Startseff mine, in which Messrs. Crompton & Schwabe have a half interest. The Ussuri Railroad Company used this coal until last year; but becoming dissatisfied with the quality, the managers have recently concluded a contract for five years with the prison department of Sakhalin. This railroad uses some 60,000 tons yearly. Messrs. Clarkson & Co. have several mines of fairly good coal, but it is not uniform in quality; they can deliver in Vladivostock at 8 rubles ($4.12) per ton.

Most of the coal produced here is lignite and friable. The Chinese Eastern Fleet is an important consumer, and from 10 to 15 new steamers are expected to be added to the service.

The Russian naval squadron in the Pacific uses foreign coal—mostly Japanese—to the value of 1,000,000 rubles ($515,000) annually.

The Government some years ago made a special examination of the coal in the South Ussuri section. The report mentioned especially some mines at Su-Chau, near the Su-Chau River, 20 versts (13.2 miles) from the beach—some 60 miles from Vladivostock by sea and nearly 100 miles by land. The coal is anthracite and is pronounced superior to that of Japan in quality. This mine was formally opened in January, 1902. Active work has been begun and a railroad will connect the mine with the Ussuri line, making transportation to this port easier. The money has been appropriated. The demand for all departments around Vladivostock, exclusive of the naval need, is estimated at 100,000 to 120,000 tons for the current year.

The local supply has made perceptible inroads on Japanese imports. In 1899, Japan sent 93,156 yen ($46,392) worth of coal; in 1900, 8,862 yen ($4,413). Distance and freight charges seem to prevent competition on the part of United States coal at present, though in quality it is considered just what is needed.

The whole Maritime Province is rich in all kinds of minerals. The region about St. Olga Bay has iron ore, the percentage of which is said to be higher than that of the Urals. There is also much silver and lead about Olga. The distance from St. Olga Bay to the Ussuri Railroad is from 170 to 200 versts (112.7 to 132.6 miles).

THE SAKHALIN MINES.

The Mgatchinsky mines are worked entirely by convict-colonist labor. About 400 men are employed in the winter, the average earnings of each being 60 kopecks (31 cents) a day, without board. The mines have their own stores, where provisions are sold at Vladivostock prices; but the workmen are privileged to purchase provisions where they prefer, as at Alexandrofsk. There are two steam pumps at work, one steam coal elevator, and a 23-horsepower tramway. In 1901, a steam locomotive, with cars, was introduced. The coal vessels are loaded by lighters and a steam launch. Large steamers transport coal from the mines to different ports.

The Doue mines of Sakhalin.

The Doue mines are only partly worked by convicts, who are sent in gangs of 300 men until the 15th of September; after this date, the number is reduced to 100. The day's pay is 50 kopecks (25.7 cents) per man. Koreans are also employed. One steam pump is now used; another is on the way from Moscow. A steam coal elevator

and a steam sawing machine are also ordered. There is a steam launch for towing the lighters. Lighters and other appliances cost extra.

Analyses of coal from the two mines.

	Per cent.
Mgatchinsky (by technical bureau, Ussuri Railroad):	
Burning material	87.93
Ashes	10.2
Moisture	1.87
The Doue (by the Imperial Russian Technical Society):	
Ashes	1.56
Moisture	1.71
Vol. sulphur	.17
Carbon	83.39
Hydrogen	5.6
Oxygen and azote	7.57
Coke	.65
Gas	.35

NOTE.—For use on railroads, 120.2 poods of this coal is equal to 1 cubic sagene of wood.

Exports of coal from Sakhalin by T. O. Makovsky & Co.

Year.	From—		Total.
	Doue mines.	Mgatchinsky and Sertundisky mines.	
	Tons.	*Tons.*	*Tons.*
1893	6,214	5,509	11,723
1894	5,414	6,622	12,037
1895	5,965	7,934	13,899
1896	8,878	7,367	16,083
1897	12,699	10,793	23,492
1898	17,517	10,209	27,728
1899	24,390	13,008	39,624
1900	22,937	13,322	37,886

Output of coal (including anthracite and lignite) in the whole Russian Empire during the years 1888–1897.

[From the Russian Journal of Finance, 1901.]

District.	1888.	1889.	1890.	1891.	1892.
	Tons.	*Tons.*	*Tons.*	*Tons.*	*Tons.*
Donetz	2,204,812	3,061,029	2,954,299	3,089,880	3,515,465
Poland	2,375,659	2,436,147	2,431,046	2,560,636	2,837,293
Moscow	271,894	301,433	230,028	177,683	176,885
Ural	205,668	258,594	245,432	241,647	248,886
Kirghiz	1,478	2,817	2,043	2,241	1,716
Kief-Elizavetgrad	3,466	13,752	11,177	10,921	1,999
Maritime (Siberia)*	9,678	9,999	14,395	17,385	12,599
Kuznetsk	16,289	14,437	16,953	18,516	19,237
Caucasus	8,245	10,754	9,749	7,893	16,757
Turkestan	6,870	6,823	4,851	7,962	5,660
Onega	.....	18	13	5	3
Total	5,104,059	6,115,803	5,919,986	6,134,769	6,836,500

* Maritime region.

Output of coal, etc.—Continued.

District.	1893.	1894.	1895.	1896.	1897.
	Tons.	*Tons.*	*Tons.*	*Tons.*	*Tons.*
Donetz	3,866,526	4,769,656	4,809,306	5,026,184	6,686,192
Poland	3,117,293	3,300,265	3,623,611	3,605,558	3,705,166
Moscow	176,384	190,893	163,773	155,352	199,095
Ural	256,324	274,232	284,251	359,460	350,605
Kirghiz	1,605	1,544	3,077	2,022	1,699
Kief-Elizavetgrad	7,614	12,001	5,740	4,829	1,199
Maritime (Siberia)*	12,111	18,235	18,065	17,402	44,153
Kuznetsk	16,414	19,901	19,882	22,437	9,692
Caucasus	25,979	28,859	18,315	29,869	21,294
Turkestan	13,429	8,191	8,183	6,596	6,995
Onega	8	.....	.....	.....	.....
Yenesei Province	.....	330	177	.....	.....
Turgai Territory	.....	10	5	6	13
South Ussuri Territory*	.....	.....	660	.....	.....
Total	7,493,687	8,624,117	8,955,045	9,229,715	11,026,103

* Maritime region.

Total in 1898, 12,037,822 tons.

R. T. GREENER,
Commercial Agent.

VLADIVOSTOCK, *March 30, 1902.*

CHINESE RULES AND REGULATIONS FOR MINING.

Under date of April 4, 1902, Minister E. H. Conger, of Pekin, sends a copy of the new rules and regulations for mining sanctioned by the Chinese Government, as given below:

(1) All persons intending to engage in mining, whether with native shareholders or by borrowing foreign capital, must first of all clearly petition the Foreign Office and present the petition in person, or request the viceroy or governor of their respective provinces to forward their application to this board, and await an official reply. Whenever permission to mine is given, a certificate will be granted, without which no mining operations can be undertaken.

(2) When such applications are approved by the Foreign Office, that office will refer the application to the bureau of mines and railways for approval. On receiving from the head office a reply in the affirmative, the Foreign Office will advise the bureau of mines and railways to issue a permit, after receipt of which mining operations may be commenced. Fees for such permits will be charged at the rate of 1 per cent on the capital, which must be paid to that bureau for office expenses.

(3) The applicant who originally applies for a permit for mining must himself carry on the matter; he can not sell it to someone else. [It is not transferable.] In case he desires to sell out before or after he has begun operation, the original applicant must, with the transferee, apply again to the Foreign Office, according to articles 1 and 2, and put the matter on record. When this has been complied with, then the transfer can be made.

(4) If the owner of the land can not come to terms with the mining parties, the original petitioner should first parley with him, agree on a price, and have it recorded. It should not be a private (or secret) transaction. If, for Government

reasons, the land should be mined and the owner of the land is obstreperous, he should be made to yield to the wishes of the Government. In such a case, the officials shall pay the owner a reasonable price, so that mining can be begun at will.

(5) Applicants for concessions may be Chinese or foreigners, or Chinese and foreigners in partnership; it makes no difference. But the land being Chinese soil, and permission to mine being granted by the Chinese Government, it behooves all who undertake mining operations to respect and abide by the rules and regulations of this Government. If trouble of any kind arises, the Chinese Government can use its sovereignty to make a settlement.

(6) According to the valuation of the vein opened a tax must be paid, as follows:

On 100 taels' ($68) worth of coal, iron, antimony, alum, borax, etc., 5 taels ($3.40), or 5 per cent.

On kerosene, copper, lead, tin, sulphur, cinnabar, etc., 10 per cent.

On gold, silver, spelter, quicksilver, etc., 15 per cent.

On diamonds, crystals, etc., 25 per cent.

Ores which are not included in the above list shall pay a tax according to the nearest mineral mentioned.

There is still to be an export duty at the treaty ports, but no likin. The above amount is to form a distinct revenue, for which the customs are to open a separate account.

(7) Every company receiving a permit must begin work within twelve months. After that limit the permit will be canceled and a new concession given. The fact will be advertised in all the native and foreign papers.

(8) A railway for transport may be built from the mine to the nearest port or to the nearest trunk line.

(9) A mining school shall be started near to the mine, the expense to be borne by the company.

(10) All materials and mining machinery from abroad shall pay an import duty only at the port; there shall be no likin. Whatever material is procured inland shall be given a free transit pass, if it is found to be really for use at the mines. But smuggling of any kind will be heavily fined.

(11) The company must report to the Foreign Office when mining engineers are engaged, so that word can be sent to the viceroys and governors to instruct the local authorities to give them adequate protection. In case of trouble the local authorities will be held responsible. In disturbances caused through the purchase of land, opening a mine, or by the workmen, the local officials must issue a proclamation and restore order. If any malpractice is discovered they will surely be impeached and no leniency will be shown.

(12) Mining land belonging to the people may be purchased at the market value, but Government land must be leased. The new owner shall pay a land tax, as is customary. Only land needed for sinking shafts or other mining purposes shall be occupied.

(13) In buying land the company must pay a fair price, and not appropriate the land by force; nor must the owners raise their price to excess. Putting obstructions in the way on account of "feng-shui," etc., will not be allowed. In case the owner prefers to take shares rather than money for his land, this may be done.

(14) Houses and graves are to be avoided. But if the land to be mined has houses or graves on it, the original owner should be well compensated and a removal effected.

(15) There should be Chinese police to guard the mines, the expenses to be met by the company. Foreigners should have charge of the machinery and accounts, but all other employees should, as far as possible, be Chinese, and should be well paid. In case of accident to the workmen in the mines, their families should be compensated.

(16) Chinese who have studied mining abroad, or who are merchants abroad and wish to invest in mines in China, may report to the Foreign Office. Students who are successful in prospecting will be recommended for imperial honors.

(17) Those investing money in mining will be protected, but the Government will not be responsible for losses, nor for money borrowed from foreigners. Let the merchant borrow from some other merchant to repay the foreigners. It is no concern of the Government.

(18) Accounts must be made up each year, and of the net gain 25 per cent shall be paid as royalty to the Chinese Government.

(19) All companies having already received concessions or begun work may follow their regulations, except in article 6 of the present rules. New companies must adhere to these rules.

In acknowledging the receipt of these regulations, Minister Conger regrets that the probability is that instead of encouraging the development of the mineral resources of China, and thus bringing profit to the Government and people, the regulations will prove so difficult and onerous as to result in a practical prohibition of all substantial mining development.

TRADE OPENINGS IN HARBIN, MANCHURIA.

I inclose a letter concerning fire insurance that I hope will attract the attention of home companies.

The writers also desire to enter into arrangements to export pig bristles and hemp-seed oil to the United States, and wish correspondence in these lines.

In this connection, I would urge upon American exporters the importance of establishing an agency in Dalny, with a branch at Harbin and at other places in Manchuria. This is one of the richest sections of the world in agricultural and mineral resources; it has a large trade in many lines and its commerce promises to increase enormously.

Harbin is growing very fast, and is now a city covering three towns within an area of 4 miles diameter, with a Russian population of about 12,000. It is on the navigable section of the River Sungari, at the junction of the Chinese Eastern and Manchurian branches of the Siberian Railroad, and is headquarters for three divisions of the road. Many goods from the United States are now marketed there and many more can be, and it is quite important that our trade interests should be represented at an early day by American citizens, before lines of goods from other countries have become established in the market.

I would most earnestly advise American firms to join in establishing an agency at Dalny or Port Arthur, with a branch at Harbin.

This could be done to especial advantage by Pacific coast firms. The business interests of the United States are losing an excellent opportunity by not having permanent agencies in Manchuria. Trade in many lines can be opened by these agencies, without the necessity, to begin with, of carrying stocks here. Agencies should be under the management of Russian-speaking citizens of the United States.

HENRY B. MILLER,
Consul.

NIUCHWANG, *April 26, 1902.*

FIRE INSURANCE.

[Inclosure.]

HARBIN, *April 9 (22), 1902.*

To the Consul of the United States of America, Niuchwang, China.

SIR: Referring to our conversation, we beg to draw your attention to the fact that there could be done a good business in the line of fire insurance, as the rates paid (2 to 2.5 per cent) are rather high, and only Russian companies are as yet represented here.

We should be very pleased if you could induce any American company to open a branch here like those already opened at Port Arthur, and we offer our services as agents.

Harbin has two well-organized fire brigades, and there would be no more risk than in any other town in China.

Yours, faithfully, HAGEMEYER & LUTTERMANN.

AMERICAN COMMERCIAL TRAVELERS IN THE ORIENT.

The experience of two young Americans who recently spent six months traveling through Japan, China, and the Philippines for the purpose of soliciting trade affords good evidence that there is much commerce to be secured by Americans if it is properly sought. These young men studied the Chinese language in San Francisco and acquired a sufficient knowledge of it to make themselves understood. They had, therefore, the great advantage of being able to do business directly with their Chinese customers. As it was their first trip to the Orient, they did not bring a large variety of samples, but the results have been so encouraging that they propose to return equipped with an enlarged outfit. The method pursued by these young men is worthy the attention of our manufacturers. If two young Americans can learn the language in San Francisco sufficiently to enable them to deal with the Chinese in their own country, others can do the same.

I have received a letter from the salesmen who made this experimental trip during the past year, in which they tell of what they have accomplished. In speaking of cotton piece goods, they refer to the market in southern China. The letter, which may be of interest to American manufacturers looking for trade in the Orient, reads:

As we did not know exactly what class of goods of American manufacture the market here required, we came to make a test, and brought with us the following lines: American watches, rings, lockets, collar and cuff buttons, watch chains, electrical supplies, clocks, cotton piece goods, etc., all of which we pushed to the utmost.

Watches.—Notwithstanding the fact that at present Swiss watches have the greatest sale, with those of French make a close second, we had no difficulty in obtaining good orders, even though our prices were a trifle higher than those asked for European goods.

Watch chains.—In this line, we found trade very good, our only drawback being that we did not have the patterns desired, although the prices asked were satisfactory. If we had had the patterns desired, in the quality of our samples, our orders would have been trebled.

Jewelry.—In the general lines of jewelry, rings, etc., we had a very good trade and we found a fair demand for American plated jewelry of all descriptions.

Clocks.—Our line of clocks is a low-priced one, but, even so, our prices could not compare with those asked for clocks of Japanese make; therefore we could not compete.

Electrical goods.—We had an excellent trade in electrical supplies, and found the Chinese ready buyers of American goods.

Cotton piece goods.—We regret exceedingly to report that, owing to the lack of enterprise shown by our manufacturers at home in not attempting to cater to the wants of this market regarding widths, lengths, and qualities desired, we were unable to obtain any business from the Chinese, for the reason that the qualities were too fine and the prices too high for the market. In fact, for some of our goods the prices we were expected to get were double those asked by our European competitors for products of an equal grade. We will add that we found the Chinese very much interested in American cotton goods, and, were it not for the handicaps above stated, America would to-day be getting her share of the piece-goods trade in this market.

Soliciting trade.—The trade solicitor employed by commission houses throughout China is a being known as the "market shroff," who, as a rule, performs the combined duties of a salesman and collector. As a general thing, his only qualification for filling the position is that he can carry on a conversation in "pidgin English." Judged from the standpoint of an American, he is a rank failure as a salesman. As an illustration, we will state that on our arrival in Shanghai it was our intention to go after the trade with the assistance of a "shroff" who was recommended to us, but after showing him our samples and being informed by him that they were not suitable for the market we decided that this was only his opinion, and that we would go from shop to shop with our samples and satisfy ourselves. This we did, with the result that on the goods which the shroff condemned we met with great success. We also find that the fact that we speak the Chinese language has had great weight with the merchants.

Payments.—All our bills sold were paid on the letter-of-credit basis.

Prospects for future business.—In our opinion, there is a splendid opening in China for American-made goods, and we are now hurrying home, armed with samples of goods, together with the prices at which they are sold in the Chinese market, and copious notes regarding classes of goods in which the United States is not represented in this field, which we hope to induce our home people to manufacture.

W. A. RUBLEE,
Consul-General.

HONGKONG, *April 16, 1902.*

SHIPBUILDING IN JAPAN.

Consul S. S. Lyon transmits from Hiogo (Kobé), April 25, 1902, clipping from the Kobé Herald, an English journal at that port, reading as follows:

The orders which have just been placed in the hands of the Nagasaki Dockyard and Engine Works and the Kawasaki Dockyard Company, Limited, by the Nippon Yusen Kaisha and the Osaka Shosen Kaisha, serve to remind the resident of the rapid development of the shipbuilding industry in this country, while at the same time affording evidence of the growth of the country's mercantile marine. The order placed with the first-named yard is for four large steamers of 6,000, 5,400, 2,500, and 1,900 tons, respectively, the larger vessels being intended for the Japan Mail Steamship Company's European and Australian lines. Nor is the Osaka Shosen Kaisha in a different position. This enterprising company also has found it necessary to order new vessels and has found it economical to order them in this country instead of from abroad. The fact is worthy of note, for it is the first time in the history of the country that orders for eight ocean-going steamers have been in hand at one time. This may, we trust, be held to indicate that the shipping and shipbuilding industries are in a healthy and prosperous state.

The contrast between the condition of the local shipbuilding trade now and that of a few years back is a striking one. Perhaps the first real impetus given to private shipbuilding here was due to the enterprise of the late Mr. E. C. Kirby, at whose yard at Onohama—the plant of which was subsequently removed to Kure—one large cruiser and several smaller gunboats and steamers were successfully launched. Since then, the yards at Kawasaki, Osaka, Ishikawajima, Uraga, and Nagasaki have taken up the work vigorously and demonstrated beyond possibility of cavil their ability to turn out ocean-going craft and large river steamers of the highest standard. With the productions of Osaka and Kobé shipbuilding establishments trading regularly on the Yangtze, and 6,000-ton liners from the Nagasaki Shipbuilding and Engine Works making record voyages between Seattle and the Orient, and others running regularly between home ports and London, there is no longer room for surprise in viewing Japan-built steamers. There is no doubt that with the opening up of additional lines in the China and Japan seas sufficient work for local shipbuilders will be forthcoming for some years to come, and it is therefore unlikely that they will enter into serious competition in the near future with shipbuilding yards in Shanghai, Hongkong, and Singapore. The home demand seems likely to engage their activities for some years yet, though the presence of a 700-ton steamer for the Shanghai customs on the stocks at Kawasaki may be held to belie the prediction. This steamer, by the way, is to be launched next month, and the event will serve to signalize that although Japanese shipbuilders may have

quite enough to do in the near future to meet the home demand, a young rival has entered the lists against the great shipbuilding concerns of the West; and this in itself is no small credit to the nation, which is already able to plume itself upon having accomplished more in a generation than any other people in Asia or in the South Seas, and as much, relatively, as the American and English peoples whose homes are on the Pacific slope.

BICYCLES IN PERSIA.

About seventeen years ago a Mr. Stevens, an American traveler, on his bicycle tour round the world, stayed some months at Teheran. That was the first exhibition of this mode of traveling witnessed in Persia, and it caused a good deal of curiosity and amusement among the people. His late Majesty, Naser-ed-din, Shah, and his court examined the bicycle in the palace and were much interested in Mr. Stevens' riding performance and his account of his travels.

Since that time other persons have visited Teheran on similar expeditions; and private individuals, resident in the city, have imported machines for their own use, so at the present time the bicycle has become one of the recognized methods of locomotion.

The conservatism of habit is much stronger in Eastern than in Western lands. The bicycle, under the most favorable conditions, is not a very dignified method of traveling, and in this country it has been looked upon as something mean and contemptible. It has, moreover, had to enter the lists against fascinating rivals—the beautiful Arab and Persian horses. However, utility and economy are now, with certain classes, questions of more pressing importance than formerly, and prejudice has given place to a more liberal and enlightened opinion; and those who previously opposed the introduction of the bicycle have come to appreciate its value as a substitute for the more expensive horse.

The roads in and about Persian towns are perhaps not the best that could be devised, but the unpleasant features are being gradually removed. The roads which have been constructed by foreign capital to connect large centers of commerce are excellent.

The increase in the number of bicycles within the last five years and the large demand for them show that they fill a decided want; yet one rarely finds them for sale, and I have no doubt, if a stock could be put on the market, that a considerable business would be done.

The American machines, on account of the combination of lightness and cheapness, strength and durability, appear to be best suited for the country. Those of English manufacture are too dear. I am

not in a position to recommend any particular make, but those that move with the least friction and exertion, and are simple in their parts and mechanism, would be preferred for the general trade.

If American enterprise be energetic enough to enter this open door, it might lead to trade expansion in other directions. Hitherto, we have been content to supply a few articles through subsidiary channels, and have not reaped the reward of the commendation the goods have earned.

JOHN TYLER,
Vice-Consul-General.

TEHERAN, *April 23, 1902.*

A NOVEL EMPLOYMENT OF RAFFIA FIBER.

Rofia, raffia, or raphia fiber, one of the natural vegetable products peculiar to Madagascar, has long been known as an article of European importation, chiefly employed for horticultural purposes. It is, moreover, woven on handlooms by the natives of the island into various fabrics, from the coarsest sacking to a stuff with the woof of white silk, so fine that it is used by ladies in Europe for dress materials. Some small quantities of one variety occasionally find their way to New York, under the denomination of rabanas, a striped, colored, medium quality, forming a unique and novel tissue for draperies and curtains. CONSULAR REPORTS have more than once fully described this commodity, particularly in Volume XLVII of 1895, page 541, and again in Volume LXV of 1901, page 353, so that there is nothing to add to what I wrote last year.*

But in the Journal Officiel, of Tananarivo, for this week, I note an interesting reference to the new experiment of employing raffia fiber for the manufacture of cigarette paper. The French firm which has taken this initiative is that of Messrs. A. & P. Duplat frères, 17 rue des Bons-Enfants, Marseilles, and samples are now in the Commercial Museum at Tananarivo. The paper presents the qualities of decided suppleness and strength, and as the fiber from the start is tasteless, inodorous, and exceedingly clean, it certainly recommends itself to the most fastidious. But I would draw the attention of paper manufacturers, always in search of new productions, to the possibilities of this fiber for other uses. These are too varied to quote, but will immediately suggest themselves to the scientific manufacturer, who might be interested in following the experiments.

WILLIAM H. HUNT,
Consul.

TAMATAVE, *April 30, 1902.*

*See also ADVANCE SHEETS No. 920.

TRADE OUTLOOK IN SOUTH AFRICA.

Consul Marshal Halstead sends from Birmingham, June 4, 1902, the following extract from the London Daily Mail:

STRUGGLE FOR TRADE IN SOUTH AFRICA.

The proclamation of peace marks the beginning of what will probably be the most remarkable trade struggle of modern times. For nearly three years, the great export houses of Europe and America have been preparing for this coming battle of commerce. South Africa devastated, its farms in ruins, and many of its cities almost wildernesses, has to be reconstructed. In the interior of the new dominions, everything will be wanted afresh—from tombstones to cradles, and from bodkins to plows.

In mining machinery alone, there will be an outlay within five years of probably £30,000,000 ($145,990,000). On the rebuilt farms and in the new cities, fully 100,000 homes will have to be remade within a year. The £3,000,000 ($14,599,000) advanced by the British Government and the further sums to be loaned by it at low interest are only the beginning of expenditure in this direction. A large credit trade will spring up. Agricultural machinery in particular will be in keen demand. There is certain to be a rapid increase in light railways throughout the Transvaal, making a good market for railroad material of all kinds.

Where will these orders go? In the case of mining machinery, competition will be very keen. The De Beers Company, a very important factor in the matter, favors America in some ways. Not long since, it sent a special representative to New York, who has been making large purchases there. The Albu group, another important section, favors Germany, representing, as they largely do, German interests. Much of their business goes to the Grusonwerk. The Robinson group is generally regarded as inclined to give some orders to America. Then there comes a very important section, headed by the Messrs. Wernher, Beit & Co. and Farrars, which can best be described as militantly British.

GERMAN AND AMERICAN PLANS.

German work is seriously to be reckoned with in South Africa, but not so much so in the most profitable fields as American. The Germans in the past have been noted for cheapness rather than quality, although the standard of their wares is steadily improving. The strength of the Americans in the mining field lies partly in the fact that many American mining engineers occupy high posts on the Rand. They, in more cases than one, turned losing into paying properties by their methods, and not unnaturally they favor the products of their own nation.

An examination of recent contracts shows the great extent to which Americans have already got a hold in South Africa. In mining drills, quite 75 per cent of the drills used in South Africa are of American make, and one company in Easton, Pa., is making a first shipment of 200 tons of drills this month to East London. Two great breweries are now being built in Johannesburg and Cape Town, with everything but the brickwork from America. They cost together between £200,000 and £300,000 ($973,000 and $1,459,000). In the case of the Cape Town brewery, the plans were drawn in New York, a New York house furnishes the necessary structural material, a Cincinnati firm the copper coolers, New York companies the cookers and coolers, a Milwaukee firm the filters, Chicago the brewing machinery, and

so on down to terra-cotta fireproofing and wire netting. Even the carpentering work is done by a Staten Island firm.

In mining machinery, this country may consider itself fortunate if it maintains its former proportions and obtains orders for one-fourth of the total. In structural steel, for which there is likely to be a considerable field, America seems likely to win. For railways, the greater part of the orders bid fair to go to Belgium and the United States.

The Cape government has strongly shown that for railway material it favors America. The impossibility of obtaining quick delivery from British firms largely accounts for this. As a rule, British houses ask between three or four times as long for delivery as the Americans do. In the rapid development of a revived country, time is everything.

Last summer Sir Charles Elliott, commissioner for the Cape railways, and the expert high in the confidence of Lord Milner, came north on a special mission of inquiry for his Government. Various rumors were abroad at the time of the commissioner's intentions of placing large orders for new material. His real work, however, was not to place orders, but to find the best-equipped places for executing contracts. He went through the great works of England, continental Europe, and America, and it is no secret that he went away highly impressed with the American equipment. This visit may bear important results within the next few months.

A PREFERENTIAL TARIFF WANTED.

A demand is certain to arise for a preference for British traders in these new British dominions. Such a preference already obtains in Natal, where it is understood that Government contracts are to be given only to English firms, and are, as far as possible, to be made of British raw material.

Up to quite recently, it was impossible to get any bulky imports up country, on account of the railways being required for military work. In consequence, large stocks of goods lay at the ports. Much has been done to remedy this during the past few weeks; but the railways will be by no means free for ordinary merchandise for some time yet. Although a very large extension of trade is coming in South Africa, there will, for the next year, be many checks to it, and there will be little opening in the new field except for firms with considerable capital and able to give long credits.

England has had real advantages over America in the past in the fight for South African trade in the better and cheaper shipping facilities from this country. These may not much longer prevail.

Steps are being taken to improve American direct shipping with South Africa, and the British combine, which has for some time had a virtual monopoly of our main trade to the Cape, will soon have its field contested. A new steamer service to South Africa is almost on the eve of birth.

THE OUTLOOK.

The immediate expectation of peace undoubtedly had a very favorable influence on the home market, an influence which certainty must increase. Many business houses, especially those connected with our export trades, are launching out in fresh expenditure in view of coming prospects, and orders this week have been especially numerous.

TRADE OF THE KONGO FREE STATE IN 1901.

The Official Bulletin of the Kongo Free State publishes the following statistics of commerce during the year 1901:

The general commerce, comprising both imports and exports, amounted to $15,594,528, in which grand total the special commerce of the Free State, which comprises only the products of its territory exported and the foreign merchandise consumed in the country, amounted to $14,202,959, divided as follows: Imports, $4,458,698; exports, $9,744,261. The last figures exceed the exports for 1900 by $590,421, showing the steady progress of exportation, particularly in rubber, copal gum, and coffee. The figures for the special import trade have slightly declined, the decrease being in two important classes of merchandise, viz, railway and river-navigation material and alcohols. The importation of railway and river-navigation material has naturally decreased, owing to the completion of the Mayumbe Railway and to the fact that the river fleet of the Free State was not enlarged during last year. As to the decline in the importation of alcohols (from 1,305,876 quarts in 1900 to 205,777 quarts in 1901), this is in accordance with the desire of the Free State, which, by its new fiscal legislation, has raised the duty enormously. The decrease in the special import trade may be considered as temporary; in fact, the construction of the railways destined for the Upper Kongo will call for a large quantity of goods of all kinds, as well as for an increase in the river fleet for their transportation.

In the transit trade, the statistics for 1901 show a falling off of $684,386, principally in goods destined for the neighboring colonies of the Upper Kongo. It is interesting to note that in the special import trade Belgium holds the first place, the figures amounting to $3,226,226, out of a total of $4,458,698. The other countries follow thus:

England	$576,169
Germany	207,700
Holland	173,770
Portuguese possessions on the coast	107,065
France	86,926
Portugal	27,926
Austria	24,058
Switzerland	14,172
Italy	14,019

GEO. F. LINCOLN,
Consul-General.

ANTWERP, *May 2, 1902.*

TRADE OF BARCELONA IN 1901.

The year 1901 has shown steady progress in many branches of trade in Barcelona. So large and industrious a center of commerce can not fail to obtain its due share of the world's traffic, and, though the remarkable prosperity prevailing here while the former colonies (Cuba, Porto Rico, and the Philippines) were forced to get the bulk of their supplies from Catalonia is not likely to return, favorable crops throughout Spain have contributed to a fairly satisfactory year.

During the whole of 1901, however, a feeling of unrest was noticeable among the laboring classes, breaking out at intervals in serious strikes, which were only ended after great loss and after much bitter feeling had been shown on both sides. In the early part of the year, the attempt on the part of the cotton manufacturers in the valley of the Ter to introduce labor-saving methods was met by a long and obstinate strike, which terminated only through a compromise. Later on, the dock laborers and carters struck for higher wages, followed by the metal workers, who claimed a nine-hour working-day, and more especially certain privileges for the men, which the employers refused to concede on the plea that to give way would mean the practical handing over of the management of the workshops to their employees. This strike was the most stubborn of all, and culminated in the general upheaval which caused so much bloodshed here a few weeks ago.

The cause of these labor troubles is variously attributed to the growing cost of living in this city, to the falling off in some branches of trade, and to the use made of the men thus rendered idle by the anarchists, advanced socialists, and other disturbing elements, as a tool for their own ends.

The statistics of the trade of Barcelona, culled from reports just published, will give some idea of the commercial importance of this city.

For provisioning Barcelona, it is calculated that some 30,000 tons of fresh meat, 4,000 tons of fish, 50,000 tons of vegetables, over 4,000 tons of sugar, and about 13,000 gallons of wine are annually required, besides large quantities of innumerable other articles which alone create no inconsiderable amount of import trade. In connection with the importation of meat, I should mention a report which appeared recently in the press, to the effect that the impending treaty of commerce between Spain and the Argentine Republic would have as one of its immediate results the formation of a powerful syndicate for the importation of frozen meat from the River Plata.

At present, the efforts of the Spanish manufacturers and producers are directed toward the South American republics, where they hope to find a market to replace that of their lost colonies.

WHEAT.

According to the Government Department of Agriculture, the 1900 crop amounted to 96,626,508 bushels. The deficit to meet the consumption of the country had to be imported, and most of the arrivals were landed at this port.

Arrivals of wheat at Barcelona.

Month.	1900.	1901.
	Tons.	*Tons.*
January	15,313	8,614
February	10,676	10,106
March	3,821	1,389
April	4,010	6,428
May	15,635	11,027
June	9,225	3,290
July	15,239	3,635
August	3,785	6,450
September	15,054	7,491
October	8,778	12,912
November	8,756	.....
December	17,250	5,015
Total	127,544	76,356

The improvement in the milling machinery in the large Catalan flour mills has resulted in foreign flour being shut out almost completely, only insignificant quantities of superior grades used in confectionery and in the preparation of certain kinds of vermicelli being still imported. It has been found that as good flour can be ground from Castille and Extremadura wheat as from Black Sea qualities.

CODFISH.

Next to bread and vegetables, codfish forms the chief food of the poorer classes here. The following table shows the quantities imported during recent years:

Year.	France.	Iceland.	Norway and Scotland.
	Tons.	*Tons.*	*Tons.*
1895	325½	1,292½	4,528
1896	1,309	1,453	3,184
1897	783½	2,397½	3,017
1898	629	2,155½	2,300
1899	734	2,632	2,316
1900	733	3,147	1,729
1901	409	2,662½	1,533

COFFEE.

As will be seen, the past year shows a largely increased consumption of this product.

Imports of coffee.

Year.	Porto Rico.	Philippines.	Other places.
	Bags.	*Bags.*	*Bags.*
1895	21,104	1,448	87
1896	33,218	209	500
1897	29,443	1,591	1,181
1898	27,674	135	4,741
1899	22,006	195	19,262
1900	2,618	.....	19,273
1901	10,249	.....	45,117

COCOA BEANS.

Cocoa beans are imported in considerable quantities for the manufacture of chocolate, which in Spain to a large extent takes the place of tea as a beverage. It would appear from the following statistics that the Island of Fernando Po, during the past seven years, has succeeded in quadrupling its exports to this market, while Cuba has lost ground.

Imports.

Year.	Cuba.	Fernando Po.	Porto Rico.	Guayaquil.	Venezuela.
	Tons.	*Tons.*	*Tons.*	*Tons.*	*Tons.*
1894	420½	333½	.....	482	48½
1895	647½	540½	4½	370	35
1896	910½	627	2	379½	107½
1897	57½	752	4	407½	162
1898	2½	1,000½	1	283	38
1899	164	1,233½	.....	419½	41
1900	73	1,161½	3	157½	6½
1901	35	1,297½	.....	434	.....

This table does not include the imports from Brazil and some small arrivals from other places.

COAL, STAVES, FOREIGN MAIZE, AND HIDES.

The quantity of coal annually landed at Barcelona has steadily advanced, although the figures show that while the imports of foreign coal have varied little from one year to another, the growing use made here of native coal from the mines in the north of Spain

has been responsible for the increase in the aggregate consumption. The figures comprise only the arrivals by sea, and do not include what the railroad companies have brought to Barcelona for stacking in their own yards.

Imports.

Year.	Coal.			Staves.	
	Native.	Foreign.	Total.	United States.	Levant.
	Tons.	*Tons.*	*Tons.*	*Number.*	*Number.*
1895	.....	537,038	537,038	1,639,746	744,800
1896	29,432	509,582	539,014	1,018,800	652,000
1897	30,716	557,890	588,606	935,939	741,950
1898	101,340	391,629	492,969	921,994	471,456
1899	116,605	541,565	658,170	1,620,929	685,250
1900	135,114	523,190	658,304	1,098,664	584,940
1901	126,034	600,618	726,652	1,231,605	609,100

Year.	Foreign maize.	River Plata hides.
	Tons.	*Number.*
1897	.....	369,680
1898	41,068	104,968
1899	31,695	386,962
1900	24,929	415,902
1901	34,178	485,461

Owing to the market being oversupplied with stocks of hides and leather, the past year has been a very unfavorable one for this branch of trade. Many failures have taken place and all tanners have been obliged to reduce their output.

SOAP.

Soap is extensively manufactured in Barcelona, there being over 100 factories engaged in this industry, with an annual production of about 25,000 tons. In the commoner grades, the duty of about $25.50 per ton prevents importation; but, as British and French toilet soaps are still imported in spite of the rapid strides recently made by native manufacturers in this direction, I see no reason why the best classes of American toilet soaps should not find a market in Spain. The duty on these is even higher than on common soaps, being 3 pesetas per kilogram (about 42 cents per 2.2 pounds) when imported from countries having no commercial treaty with Spain, and 2½ pesetas from favored nations.

EXPORTS.

Oversea exports of Catalan products.

Description.	1898.	1899.	1900.	1901.
Olive oil.....tons...	1,149	857	959	1,131
Brandy and spirits.....gallons...	68,670	49,790	15,281	25,737
Garlic.....tons...	1,033	1,198	1,453	1,426
Almonds.....do.....	430½	416	368½	418
Walnuts.....do.....	236	195	363½	187
Rice.....do.....	255	303½	355½	336
Candles.....do.....	89	79	130	121
Shoes.....do.....	407½	950½	884½	851
Preserves.....do.....	444½	953	960	977½
Flour.....pounds...	3,179	88	350	288
Soap.....cases...	126,404	161,903	131,201	159,322
Red pepper.....tons...	896½	672	558½	789
Paper.....do.....	258	221	96	87
Vermicelli.....do.....	350	233	170	232
White wine.....gallons...	1,777,322	1,967,996	1,769,785	1,559,142
Red wine.....pipes...	95,769	87,980	82,120	68,882

As will be seen, the foregoing statistics do not comprise any kinds of textiles, the particulars of which are for some reason not given, though Barcelona is the center of the textile trade of the country. With regard to the Philippines, the export trade during 1901 was very dull, shipments of cotton hosiery and knit undershirts alone being fairly maintained; the first two months of this year have, however, brought about a slight revival in the trade in cheap cotton prints, as well as in turkey-red yarn.

Exporters of agricultural products (with the exception of wine shippers) had little to complain of during the past year.

Almonds in shell that are shipped from this port are for the most part consigned to the River Plata. They are sent in sacks weighing about 1 cwt. each, with 2 per cent allowed for tare. The bulk of the exports, however, consists of shelled almonds in casks, cases, tins, or sacks, of various weights, according to the markets for which they are intended—principally the Antilles, Mexico, River Plata, France, and Italy, and, for lesser quantities, Great Britain and Germany. Walnuts, which are grown chiefly in the neighborhood of Tarragona, are sent to Cuba, Mexico, and the River Plata, in 1-cwt. sacks.

Canned fruits and vegetables are also largely exported, owing to their low cost; especially is this true of tomatoes, peppers, and white beans.

Wine.

The following figures show that the exports of wines are falling steadily, and growers are calling for the Government to assist them to retain and develop the South American markets. Improved

methods are also required on the part of the growers themselves, in order to turn their natural resources to the best advantage—a point that in recent times of prosperity was frequently overlooked.

Exports of red wine.

To—	1898.	1899.	1900.	1901.
	Pipes.	*Pipes.*	*Pipes.*	*Pipes.*
Cuba	45,956	46,268	42,497	38,541
Porto Rico	1,062	1,148	240	167
Philippines	1,943	1,349	2,962	1,501
River Plata	37,478	32,173	28,816	21,928
Brazil	739	650	375	566
Mexico	4,190	3,820	3,420	3,386
Belize	20	32	25	18
Fort de France	797	601	789	461
Trinidad	1,025	265	21	.....
Colon	1,350	802	1,986	1,578
Santo Domingo	15	.....	31	168
La Guayra	1,118	845	920	382
Puerto Cabello	31	.....	.....	.....
United States	45	27	38	186
Total	95,769	87,980	82,120	68,882

JULIUS G. LAY,
Consul-General.

BARCELONA, *April 18, 1902.*

MEAT AND CATTLE TRADE IN BARCELONA.

The increased price of food stuffs in Spain has for some time given rise to repeated complaints, and has contributed in no small degree to the prevailing discontent among the laboring classes in the large manufacturing centers.

The proposal recently made in the Cortes to either waive entirely the import duty on cattle or to considerably reduce it is not likely to be carried, owing to the strong opposition any such measure would meet from the wealthy landowners and other influential persons whose interests would thus be sacrificed.

Efforts are being made to induce the Government to make Barcelona the port of arrival for live cattle; and the town authorities, appreciating the desirability of cheapening the price of meat, have offered to provide the means of properly inspecting and disinfecting the cattle on arrival. If at the same time it could be arranged for refrigerator steamers to call here on their way to Marseilles and Genoa, there seems to be no reason why a large business should not be done in meat from the United States; or this might be effected by arranging a connection with the steamers at either of those ports.

The imports (46,969,964 pounds in weight) into Barcelona during 1901 were:

Description.	Head.	Description.	Head.
Oxen	12,538	Lambs	107,339
Cows	14,318	Ewes	87,003
Calves	39,777	Pigs	60,000
Sheep	349,248	Total	708,247
Goats	16,668		
Kids	21,356		

The duty per head on cattle is as follows:

Description.	Duty.	
	Pesetas.	
Oxen	40.00	*$5.44
Cows	35.00	4.76
Calves	25.00	3.40
Sheep	2.40	.326
Goats	2.40	.326

* Taking the current market value of the peseta as 13.6 cents.

Imports by land from Portugal are entered duty free. The "octroi," or municipal tax, on meat is 0.30 peseta (4.08 cents) per kilogram (2.2 pounds).

The trade is in the hands of a few dealers called "abastecedores," who import the cattle and attend to the slaughter, which is done for their account at the public slaughterhouses. Each of these abastecedores supplies a certain number of butchers with the meat to be sold either in the markets or in private shops, obliging them to pay cash on delivery.

Before the meat leaves the slaughterhouses it is examined by the sanitary inspectors, and none is supposed to pass that is not perfectly fresh and fit for human food.

Prices vary considerably, and unfortunately nearly always with an upward tendency. At present, beef is sold at 2.25 pesetas per kilogram (about 14 cents per pound) and mutton at 2.50 pesetas per kilogram (16 cents per pound).

The retail shops are similarly equipped to those in other countries. The meat is delivered to them divided into four quarters, and is taken round in covered vans specially constructed for the purpose, with hooks on the sides on which the meat is hung.

JULIUS G. LAY,
Consul-General.

BARCELONA, *May 27, 1902.*

PROJECTED ELECTRIC RAILWAY IN SPAIN.

A royal decree of March 7 grants a concession to Don Teodoro de Mas y Nadal to construct, within the next six years, an electric railway between the towns of Vich and Amer, in the province of Gerona.

The capital of 9,000,000 pesetas (about $1,200,000), which is estimated as necessary to build this railway, has not yet been subscribed; but if Señor Mas is as successful in securing capital from foreign countries as other promoters of electric railways have been, it will only be a short time before the road is in operation.

I have obtained a memorandum of this project, showing in detail the estimated cost of construction, material required, water power available, cost of maintenance, receipts, etc., and plans and longitudinal profile, which I send for the benefit of those interested.*

Contracts for this road will, of course, not be thought of until the capital for its construction is subscribed. I will then report the names of chief contractors, but in the meantime I would advise our manufacturers of electric-railway equipment to keep in touch with Señor Teodoro de Mas, of Vich, Spain, and correspond with him in Spanish.

JULIUS G. LAY,
Consul-General.

BARCELONA, *May 1, 1902.*

ELECTRIC RAILWAYS IN MALAGA.

The municipal council of Malaga has finally authorized the company operating the street-railway system of this city to apply electric traction to the several lines. The mileage of the company at present in operation is comparatively insignificant, consisting of only about 8 miles, but concessions have been granted for various other streets, and the system is sure to expand considerably at no distant day.

The company owning the system is a joint-stock society, with headquarters in Brussels, Belgium. The corporate name is "Tramways of Malaga." The directors are Messrs. Adh de la Hault, P. Hammebeath, Charles A. Lucas, Paul Mayer, and Max Ryndzunsky, all of whom reside in Brussels.

It is said to be the intention of the company to go to Germany

*Filed in the Bureau of Foreign Commerce, where they may be examined.

for its entire electric equipment. It is possible, however, if the matter were thought to be of sufficient importance, that enterprising American agents might interfere with this plan.

BENJ. H. RIDGELY,
MALAGA, *May 6, 1902.* *Consul.*

ARSENIC AND GALENA MINES IN THE PYRENEES.

North of Barcelona, in the heart of the Pyrenees, some 9,000 feet above the level of the Mediterranean, is located a mining property which covers a surface of over 16,000 acres, or 6,500 hectares, and is worked by Messrs. Girones & Henrich, of Barcelona. The mineral wealth of this spot has been known from ancient times. Iron was worked here on a large scale until the middle of the nineteenth century. The valley of Ribas is the cradle of the well-known Catalan furnaces, ruins of some of which can yet be seen. When the forests that covered the slopes of the mountains disappeared—all wood having been burnt for the furnaces—the working became impossible. Although iron is the least important of the minerals to be found in that district, the ore contains 54 to 60 per cent of metal; but copper to 4 per cent, arsenic to one-half of 1 per cent, and phosphorus and sulphur in excess render the ore very difficult to use for large industrial purposes.

Since 1840, other minerals have been sought for, and mispickel containing an average of 45 per cent arsenious acid, with from 10 to 16 dwts. of gold, was worked with advantage. The tremendous fall in the price of arsenic, together with the practical impossibility of transport (to take a ton of ore from the mines to Barcelona costs more than $100), caused the ruin of the enterprise. Subsequently, a powerful French company was floated with the sole object of extracting the gold contained in the ore, but the enterprise could not succeed, as the small percentage of gold did not cover the expense of treatment; besides which, in burning the ore in free furnaces, the whole valley was poisoned with the arsenic, and the company was obliged to pay a very large sum to indemnify the owners of cattle and crops.

It is only in the last few years that Messrs. Girones & Henrich purchased the mines and began working them on a paying basis. After having thoroughly investigated the ground, they explored the most powerful veins and succeeded in extracting over 3,000,000 tons of mispickel, of which several thousand tons were exported to England and other countries of Europe. The results of the sale of their

ores, and especially the prices obtained from the residues after calcination, induced them to erect works at Badalona, a small town on the Mediterranean 4 miles from Barcelona. Besides the arsenical pyrites, they work the rich galena veins, containing an average of 53 per cent of lead, 60 ounces of silver, and 12 dwts. of gold to the ton, as well as the copper veins of about 23 per cent metallic copper and 20 dwts. of gold to the ton.

A large metallurgic plant, as stated, has been erected at Badalona for the treatment of arsenical, copper, lead, and silver ores. It occupies a surface of 18 acres. Part of the plant is in full working order and will treat 30 tons of arsenical ore per day. It has been erected by English engineers and practical burners for the production of the very best quality of arsenious acid (As_2O_3), which is exported. The arsenious oxide is absolutely free from any impurity or metal.

At a very early date, the plant for the treatment of lead and the extraction of silver from the galena produced in the mines will be erected. At the same time, the residues of the arsenical and lead ores, and a special mud to be found in large quantities on the surface of some of the mispickel mines at Ribas, will be treated, and a new plant for working these products will be in operation before the end of 1902.

The firm has commenced exporting arsenious acid to the United States, where, it is expected, the product will have the same success as in other countries.

JULIUS G. LAY,
Consul-General.

BARCELONA, *May 2, 1902.*

PROJECTED IMPROVEMENTS IN THE HARBOR OF GENOA.

I have obtained, through the courtesy of Signor Inglese, chief of civil engineers, the plans and estimates for the improvement of the port of Genoa, which have been approved by the Minister of Public Works at Rome. It is understood that bids for the entire project will soon be invited.

An American contractor, backed by ample capital, is now on the ground, and offers to do the entire work within less than the estimated time.

In support of these plans, Signor Inglese has submitted a very elaborate report to the Italian Government, from which I gather the following information, which may be of interest not only to contractors in the United States, but to those engaged in foreign commerce.

The commercial movement of the port of Genoa, which amounted in 1870 to 1,000,000 tons of merchandise loaded and discharged, at the end of the year 1900 had reached a total of 5,300,000 tons, and yielded from customs duties and port charges a revenue to the national treasury of about 90,000,000 lire ($17,370,000).

In 1880, there was a sudden increase in the commercial activity at Genoa, as the benefit of the Galliera legacy began at that time to make itself felt. The Duke of Galliera had bequeathed some $4,000,000 for the improvement of the harbor of Genoa, and the results of this expenditure were shown at once in increased traffic and prosperity for the city.

Estimates have been made of the increase of traffic to be expected in the future; but as the aggregate tonnage anticipated for 1903 had already been reached in 1898 and as the total for 1905 was surpassed in 1900, the engineer who has planned the new works has based his statements upon conditions reasonably to be anticipated for the year 1910.

In this calculation, due weight has been given to the commercial effect of the opening of a new artery of trade under the Alps by way of the Simplon route, which will be completed in 1905. Of the business of the port of Genoa, only 30 per cent is local or provincial, while 70 per cent is international or interprovincial.

The principal works proposed are:

1. A new anchorage basin of 39 hectares (about 80 acres), which will nearly double the present available water surface and is designed especially for the discharging of coal. On this point, the engineer remarks, significantly: "We should bear in mind that from now on the importation of American coal into Europe is an assured fact."
2. The construction of a sea wall.
3. Increased trackage along wharfs for railway traffic.

The accompanying diagrams* indicate the scope and character of the completed works.

RICHMOND PEARSON,
Consul.

GENOA, *May 9, 1902.*

PATÉS DE FOIE GRAS IN FRANCE.

There has recently appeared in several American journals, from one professing to be an expert in the matter of food adulteration, a statement to the following effect:

> It is something of a surprise to find that even in such a high-priced article as patés de foie gras, the traditional diseased goose livers have been replaced by beef and pork.

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*Filed in the Bureau of Foreign Commerce, where they may be examined by parties interested.

The names of certain French packers are then given who are charged with substituting beef suet and pork for "diseased goose livers." One of these packers thus curiously stigmatized is a shipper through this consulate. He is also a large importer of American products, and his trade may be seriously impaired by this denunciation of his wares.

It is hardly correct (at the outset) to refer to "foie gras"—as it is produced in southern France, at least—as "diseased." A fatted goose liver is no more diseased than the meat of an overfed hog. Both are "abnormal" and in that sense might be regarded as the product of unsanitary conditions. The goose may for a time be confined by a tether a yard or so in length, fastened to a stake, beside which it waits with the healthiest appetite for its frequently supplied portion of American corn meal, which is the food chiefly relied upon for fattening. In fact, the increased importation of American maize during the past quarter of a century has been a chief stimulus to the trade in foie gras. The goose is not encouraged to take too much exercise, any more than any other fattening animal. It is not fed for its health, but to incline it to take on fat. The result of this is to greatly enlarge the liver, which is the most valuable part of the carcass. But those who have seen the prize hog almost unable to stand erect, and kept from actual melting of its superabundant flesh only by frequent use of the hose, will readily perceive that if too much fat is a disease there are other forms of abnormal development just as objectionable as the much-prized goose liver.

Foie gras d'oie—the fat goose liver—is prepared for use and export here in several forms: (*a*) Foie gras naturel, (*b*) patés de foie gras, and (*c*) purée de foie gras. The foie gras naturel is simply the cooked liver served without any form of sauce or seasoning except the fat or oil of the liver itself. The paté de foie gras of commerce consists of the cooked liver packed in tin boxes of a standard size, which the liver is roughly cut to fit. The space not occupied by the liver is filled with the trimmings of the liver or pork, finely hashed and pressed in. Over this is poured the melted fat, sometimes of the liver and sometimes beef suet. The pieces of liver clipped off in this process of fitting the cooked liver to the box are used with other hashed meats and flavoring matters like truffles in preparing what is known in commerce as "purée de foie gras."

The practice of using suet instead of the natural fat of the goose liver, as a support or matrix by which the interstices between the liver and the box are filled, is not so wholly reprehensible as might at first appear, since it has certain good reasons, or at least excuses. In the first place, the suet and the somewhat firmer meat packed about the liver prevents the latter from being broken up by sliding about in the box, as it is likely to do on long journeys when only

the thin oil of the liver is used. Another fact which shippers have learned by costly experience is that the pure fat of the goose is much more likely than beef suet to become rancid when used as the sole pack of the foie. It is also claimed that the strong, greenish fat of the goose is sometimes repulsive to persons of weak stomach, and that Americans who are especially opposed to what they term "messy dishes" are unreasonably opposed to patés made with the pure goose fat. The modifications described are prepared simply to reconcile the perverted American taste to the foreign dainty. Though the primal purpose of the change of material was no doubt to reduce cost of production, the result is said not only to be a reduction in price to the consumer, but to give him an opportunity to select the form of this delicacy he may prefer. Some people greatly prefer the sorts which have the foie naturel with the supporting paté made of other hashed meats and the more wholesome appearing and less highly flavored suet.

Instead of being a harmful or depreciable adulteration of a well-known product, it is claimed this is a modification not only harmless, but of a character essential to its preservation and adaptation to the popular taste of the majority of the American people. At all events, it does not seem exactly fair that firms who have made entirely healthful products should be rated by name among those engaged in making and selling "adulterated food." At least one of the parties named—the others not being shippers from this port—manufactures all kinds of foie gras known to commerce in this vicinity, leaving to his customers the choice of those best suited to their particular trade. All are good and all their components absolutely wholesome, as he declares, some being better adapted for one taste and some for others.

ALBION W. TOURGÉE,
Consul.

BORDEAUX, *May 1, 1902.*

THE CANDIED-FRUIT TRADE OF MARSEILLES.

A very interesting commercial specialty in Provence is that of preserving fruit in sugar, classified in French as "fruits confits," which is carried on here with greater success than anywhere else in the world. The exports of this article from Marseilles to the United States have amounted in value, since 1897, to the following sums, years ended June 30:

1897	$110,950
1898	95,104
1899	95,346
1900	110,796
1901	146,325
1902 (three quarters only)	101,668

The most successful houses engaged in this business are located in the little town of Apt, in the center of a rich and protected corner of Provence, where many kinds of fruit and vegetables are grown and shipped to the Paris and Marseilles markets. The most prominent of the Apt manufacturers informs me that, although he has experimented repeatedly in the United States and elsewhere with fruits of various kinds, he has failed to secure satisfactory results anywhere except in Provence. This same gentleman has a branch house in New York, where certain supplementary operations are carried on for the American trade, and he is reasonably familiar with the fruits grown in California and Louisiana. He says that the fruits of the States mentioned, although attractive to the eye and agreeable to the taste in a fresh state, lack the consistency of the French fruits and thus can not be subjected to the repeated boiling and scouring which are essential to the manufacture of a translucent and perfectly finished product. This is particularly true of the cherries, from which it is difficult, if not impossible, to extract the stones without a small portion of the flesh of the cherries adhering. Even in France, the area wherein satisfactory fruit for this business may be grown is restricted to the neighborhood of Apt. Thus, for example, the apricots of Roquevaire, also in Provence, which are shipped in very large quantities in the form of pulp to the important British canning houses, can not be preserved in sugar, retaining their natural form, color, and flavor.

The process of manufacture at Apt possesses no particular mystery, but is carried on with great patience under the direction of men who have inherited generations of experience. All of the fruits intended for preservation in sugar, in the form of what are called "candied fruit" in the United States, upon arrival in the factories are placed in hermetically sealed chambers, upon shelves permitting of the free passage of sulphurous fumes. In this chamber about 500 grams of sulphur per 4,000 kilograms (8,800 pounds) of fruit are burned, and the chamber is kept closed for two hours. The effect of the sulphur is to brighten the fruit, give it a uniform transparency, and remove black spots and superficial imperfections. This operation terminated, the fruit is plunged into boiling water, maintained at a temperature of 100° C., in which it remains for from twenty to sixty minutes. This operation is known as the "bleaching process," the purpose of which is to remove the last remaining natural acid and render the fruit absolutely pure. After this thorough boiling, it is removed and placed in fresh water, in order to harden the flesh, and remains in this water, which is constantly renewed, for from twenty-four to forty-eight hours, according to the nature of the fruit.

The raw material is by this time entirely ready for the preserving process proper. It is first placed in boiling sirup daily for a period of about two months. There are ten different operations connected with this branch of the process, which results in the concentration of the sirup and guarantees the complete preservation of the fruit. The fruit is continued in sirup until the moment for packing and forwarding arrives, when it is removed, washed in water, and finally crystallized, an operation which consists in again plunging the fruit into sirup with boiling sugar, where it remains for ten hours. With this final sugar bath, it is considered that the fruit can be delivered with entire security to the public.

It is well understood that the use of sulphur is of no importance in so far as the real merit of the finished product is concerned; but, on the other hand, there is no doubt that it renders it much more attractive to the eye. It will be interesting to American fruit growers to learn that, in the opinion of the French manufacturers, they have not yet produced an article susceptible of the same treatment given to the fruits of Provence, and they may perceive, in the flourishing business which exists in Provence, an incentive to provide the materials necessary for the establishment of a similar industry at home.

Because of the tariff levied upon crystallized fruit, Messrs. E. Reboulin fils, of Apt, perhaps the largest house in the business, have recently undertaken to forward fresh fruit in brine to New York, where it is subsequently treated as above described. The experiment gives every promise of success.

ROBERT P. SKINNER,
Consul-General.

MARSEILLES, *May 1, 1902.*

FRENCH COMPETITION FOR BELT MOUNTERS.

The numerous accidents to workmen in establishments where belts are used has recently brought about the stringent application of a French law forbidding the removing or replacing of a strap by hand while the machinery is in motion.

In order to obviate the waste of time consequent upon the stopping of the machinery, an association of French manufacturers has announced an open international competition for the best fixed belt mounter.

The invention should be designed for simple and not for conical pulleys, and must comply with the following conditions:

(1) It must be simple, strong, and occupy little space; easy to fix and use.

(2) Not dangerous in working.

(3) Convenient for any speed, width, or position of belt.
(4) Able to throw the belt off and on.
(5) Sufficiently low in price to allow of its wide use.

Competitors are invited to send full descriptions of their inventions, accompanied, if possible, by models or at least by satisfactory illustrations, to the president of l'Association des Industries de France contre les Accidents du Travail, No. 3 rue Lutèce, Paris, prior to October 1, 1902.

This notice may be of interest to American inventors or to firms dealing in machinery of this description.

W. P. ATWELL,
Consul.

ROUBAIX, *May 12, 1902.*

THE TREATMENT OF OLIVE OIL IN FRANCE.

The manufacture of crude olive oil in Europe has undergone comparatively little change since scriptural times. The olive tree gives a good yield of fruit every two years, which is gathered in France in either November or December. In Italy, the picking season is in either February or March. The rule is to collect the olives before their maturity; matured they fall, become bruised, and give an oil green in color and sharp in taste. Gathered too long before their maturity, the oil extracted has these same disagreeable qualities, and it is therefore necessary to recognize with certainty the proper moment for taking them from the trees. At first green, they become yellow, then red, and finally reddish brown, at which point they have arrived at the desired state of maturity. The olives found upon the ground are placed aside, and the trees are then shaken, in order that the completely ripe fruit may also fall and be put apart. The oil extracted from these olives is of inferior quality and has the flavor of the fruit itself. The olives remaining upon the tree are either picked by hand or beaten with long poles. The latter method is discountenanced, as the fruit is thereby necessarily bruised, with disastrous consequences to the oil, and the trees themselves give a less abundant yield thereafter. This system is so expeditious, however, that in a large proportion of cases the trees are beaten and the fruit falls into sheets held beneath for the purpose. An olive tree ten years old should yield about 6 pounds of fresh olives, and at twice that age twice that quantity, and at the age of fifty years from 22 to 26 pounds.

In the south of France and in Italy, the crop of olives is gathered in large sheets and transported to warehouses or cellars, and there laid in beds 6 to 8 inches in thickness. They remain for from twenty-four to forty-eight hours, until they commence to wrinkle

and lose a little of their water, but not sufficiently long to permit fermentation to begin. In other countries, and particularly in Spain, the habit is general to store the fruit in piles, where it remains for from twelve to fifteen days. A black water is drawn from this mass, which heats and ferments. Before the fermentation proceeds too far, a point which is decided by thermometrical test, the manufacture of the oil begins. The piles should not exceed 6 feet 6 inches in height. The extraction of oil from olives thus manipulated is easier than otherwise, as the cells containing the oil are less resistant, but the oil has a strong odor and is less desirable than that of more carefully handled fruit.

The manufacture of the oil, properly speaking, begins with the crushing of the fruit, which usually takes place in an old-fashioned mill, although some excellent crushers are manufactured by Messrs. Coq et Simon, in Aix, Bouches-du-Rhône. The crushed fruit is placed in round mats, of which twenty-two are usually placed one above the other, the weight of olives ranging about 165 pounds. The first pressure being applied for the virgin oil, the oil and water drain into tubs, the proportion being 72 per cent of water and 28 per cent of oil. The virgin oil is set aside, and the mats, removed from the press, are bent back and forth by hand, some of the manufacturers pouring a quart of hot water upon each mat, after which the twenty-two are placed in a hand or hydraulic press and the second pressure applied. The oil and water are drained into tubs, as with the virgin oil. The pulp remaining in the mats is removed, and by a simple mechanical process which takes place in a separator the kernels are separated from the pulp, from which latter a third and very low grade of oil is obtained by chemical process. This process is rarely carried on by the olive growers, as it requires complicated apparatus. Both pulp and stones have a regular market price, however, and are manipulated in Marseilles on a large scale. The local cultivator occupies himself with the first and second crushings of the oil only.

The oil in the tubs, as it comes from the press, is carefully skimmed and placed in barrels. After all the oil of the surface has been skimmed, apparently, the water itself is poured into stone or tile cisterns, called the "enfer," where it remains three or four months. In the course of this period, a considerable quantity of oil in suspension mounts to the surface, and is also skimmed off and sold as "huile d'enfer." Its odor is very strong and the price is low. The oil of the first pressing, or the virgin oil, and the oil of the second pressing are always kept separate and sold for what they are. They are decanted three or four times from one barrel to another, and finally deposited in huge earthenware jars, where they

remain until spring, and are then decanted for the last time into barrels and offered for sale in the market.

The successful manufacturers and exporters of olive oil find their raw material wherever they can, having buyers who scour France, Italy, Spain, and Tunis, and the success of the business hinges mainly upon the tasting capacity of the head of the house, whose work begins after the oil has been pronounced upon by chemical analysis. Probably the largest institution of this kind is the establishment of Adolphe Puget in Marseilles, which has been in existence for almost a century, having been handed down from father to son. Mr. Puget himself is the mainspring of the institution, which does not suffer by comparison with any manufacturing establishment with which I am familiar. The walls of the main room are decorated with helpful mottoes, and a portrait of the founder of the house occupies the most conspicuous position. Extreme consideration for the employees, from the most humble to the most high, is one of the controlling principles of the proprietor, and a degree of enthusiasm is obtained from the working force which is as unusual as it is refreshing in this country. Next to the perfect order, the most striking characteristic of this oil factory is its absolute cleanliness, a merit which is all the more striking because of its extreme rarity in these southern countries. Mr. Puget has very recently installed a complete line of can-manufacturing machinery of American make, and in every department of the organization he has established the most perfect devices that money can buy.

The oil received by this manufacturer is discharged from barrels into a series of huge subterranean tile-lined tanks, and this portion of the building is so constructed that the variation in temperature is almost insensible from one year's end to another. As marks of oil are shipped from this institution which have been in continuous existence for over fifty years, it is of the highest importance that, although the olive crops vary from year to year, there shall be no discernible difference in the flavor of the oil of a given mark. To guard against any difference in the flavor, the crude oil is purchased in immense quantities and the proportions mixed in these large storage tanks with such nicety and prevision that consumers never realize the infinite pains requisite to maintain the standard. From the large tanks the oil is forced by hydraulic pressure through paper filters and then pumped into tin-lined tanks, from which it is drawn into bottles and cans for export. No mystery is involved in the manipulation of the oil. It is simply a matter of experience, involving the purchase of good oil in the first place, cleanliness in handling it in the second, storage in a dark and cool receptacle,

hermetically closed, and, finally, packing it with scrupulous care in bottles and cans. But even with all these precautions, Mr. Puget tells me that the very best of oil, handled under the most favorable circumstances, will show signs of deterioration within two years at the latest.

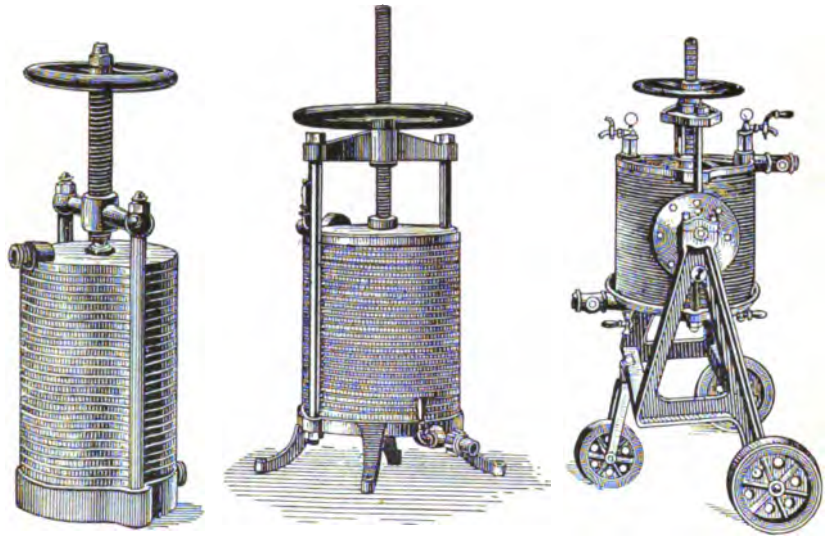
The most important operation in the treatment of the crude oil is its filtration. While the various nut and seed oils are now readily freed of the margarin in suspension by subjection to a low temperature, this process can not be successfully followed in the case of olive oil, which is a much more delicate product. Until comparatively recently, the packers of olive oil filtered it through cotton, and probably the majority of packers cling to the old system, mainly because of the expense of the improved paper filters. Excellent results are obtained by passing the oil through cotton, but the process is slower, and the cotton itself absorbs large quantities of the oil, which can not be expressed and used, except as an inferior product. It is now generally agreed that no more satisfactory filtering material has been found than specially prepared paper, and the oil is passed through paper either by means of force pumps, hydraulic pressure, or the application of the standpipe principle, the pressure upon the paper depending upon the height from which the oil is injected into the apparatus. The best filter on the French market to-day is manufactured by A. Capillery, who may be addressed at Le Vigan, Gard, France. In a communication to me, Mr. Capillery says:

My apparatus filters automatically, involving no expensive installation, and its work is irreproachable and speedy. The filter itself can not wear out, and the largest size occupies less than 1 square yard of space. Most important of all, my filter is economical, and its simplicity is such that it may be taken down, cleaned, and put back again into position by ordinary workingmen. The cost of filtering 2,200 pounds of oil varies from 10 cents to 19 cents only. The working of the device is such that virtually no oil remains in the apparatus after an operation, and what does remain is in as good condition as any other unfiltered oil, while older systems of filtration occasion considerable loss of oil, that remaining in the filter being suitable only for mechanical purposes. It is difficult to state the rate of filtration with a given machine, because this rate varies according to the nature of the oil, the amount of impurity in suspension, and its temperature. However, it may be said that when oils are in a normal state—that is to say, have reposed several days after arrival—my filters will treat the following quantities of oil per day of twenty-four hours:

Description.	Quantity.	Price.		Cost of packing.	
	Pounds.	*Francs.*		*Francs.*	
No. 2	1,100 to 1,320	750	$144.75	12	$2.31
No. 3	2,200 to 2,750	1,000	193.00	15	2.89
No. 4	4,200 to 5,500	1,500	289.50	35	6.65
No. 5	8,200 to 11,000	2,500	482.50	45	8.68

We furnish our clients with our own paper, which is manufactured with special care and contains no trace of chemical products. This costs 2 francs (38.6 cents) per kilogram (2.2 pounds), cut in form for our machines.

I give below cuts of the Capillery machines. The other chemical devices to be found in the French olive-oil trade can probably be procured just as well in the United States. They consist of ingenious devices for scouring bottles, for applying corks, labels, and



FRENCH OLIVE-OIL FILTERS.

metal capsules, and for filling bottles with great rapidity. As a matter of convenience, I may mention that one of the best lines of machinery for the treatment of oil and wine is manufactured by G. Pepin aîné et fils, 109 Rue de Notre Dame, Bordeaux.

ROBERT P. SKINNER,
Consul-General.

MARSEILLES, *May 3, 1902.*

PINE-NEEDLE OIL IN GERMANY.

The Thuringen Mountains of southern Germany are the home of the makers of pine-needle oil, extract, and similar products, which are used the world over for rheumatic and kindred complaints.

For the manufacture of these articles on a small scale, an ordinary pharmaceutical distilling apparatus can be used; but for a large industry, specially designed apparatus must be employed.

Franz Hering, of Jena, makes these up to a capacity of 3,000 liters (3,170 quarts) of pine needles.

The needles and very young shoots of the various kinds of pine trees, more particularly those of the *Pinus pumilio*, are used for the manufacture of these products. They are collected in the latter part of May or the first of June and are cut up into small pieces and put into the cylinder of the distillation apparatus, through opening *C* (see Diagram No. 1). At *A*, steam enters the base of the cylinder

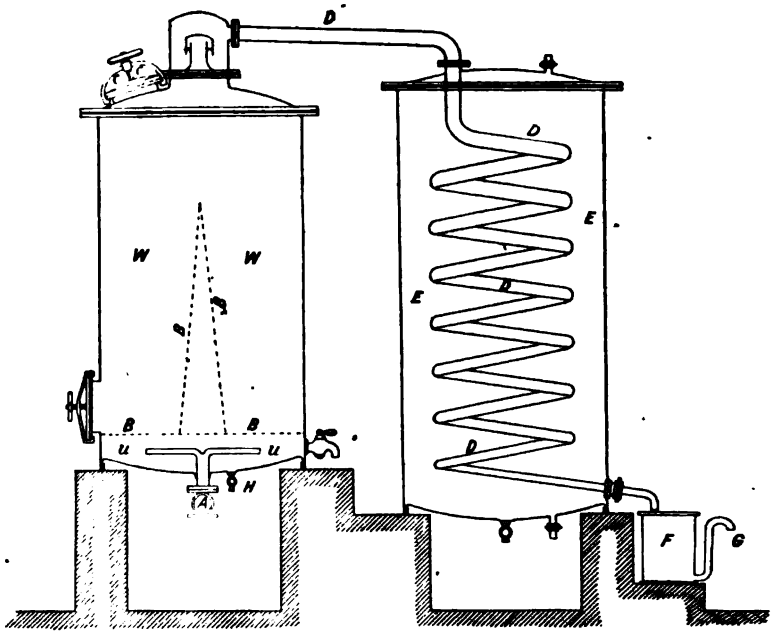


DIAGRAM NO. 1.—LARGE-SIZED DISTILLING APPARATUS.

and is conducted underneath the bottom *B*, which is usually made of zinc and is perforated, the central part rising in the shape of a cone or funnel. Through the perforations, the steam finds its way to the needles heaped up in the cylinder and the volatile oils contained therein are freed and make their exit, together with the steam, by means of a pipe *D*, which connects with the cooling cylinder *E*. Cold water runs continually from the top into this cylinder, playing around the so-called "serpent pipe" *D* and cooling its contents and then finding an exit at the bottom. Thus, the contents of pipe *D* become condensed and the liquid runs into the bottle *F* at the base of the cooling cylinder, where the oil is found swimming on the surface. The oil must from time to time be skimmed off, while the water runs out at pipe *G*. As this water is not entirely free from the oils, it is advisable to have it subjected to a rectifying

process in order to save the oil, which would otherwise be wasted; or the separation can be effected by the application of salts.

PINE-NEEDLE EXTRACT FOR MEDICATING BATHS.

When the steam has extracted the oils from the mass in the distilling cylinder, the condensed water (containing resinous, albuminous, and tannated substances) drops through the perforations *B* and collects in space *u* below; thence it is drawn off by means of

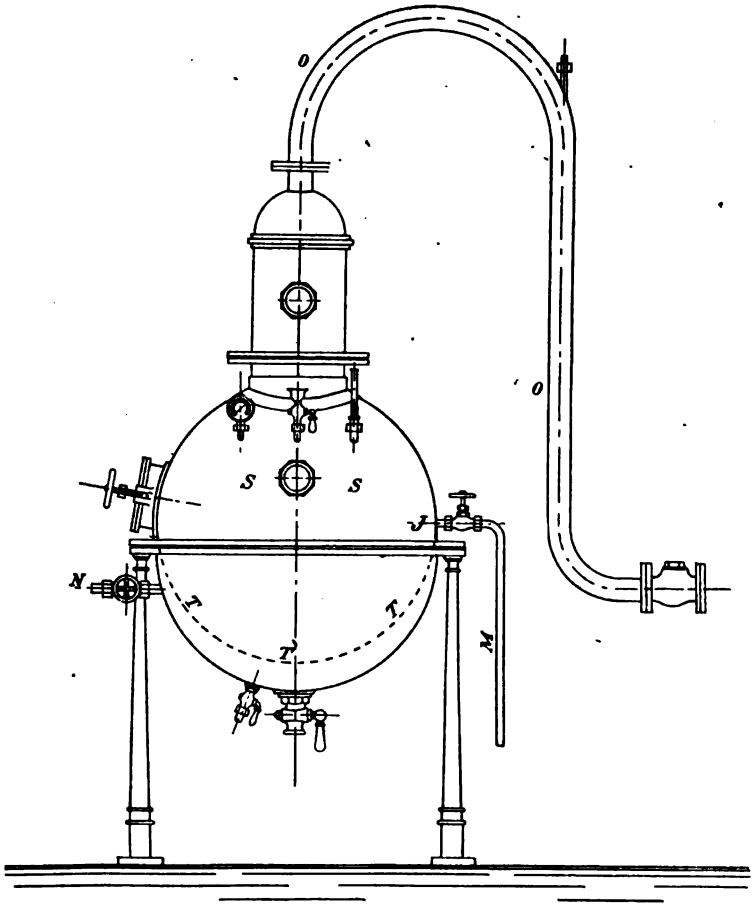


DIAGRAM NO. 2.—VACUUM APPARATUS.

tap *H* and taken by a pipe to the vacuum apparatus shown in Diagram No. 2, which represents the outside of the apparatus, while the dotted line *T* shows the lower part of the boiler on the inside.

The boiler is half filled with the condensed water, which, by means of steam entering through pipe *N* and passing underneath the boiler to find its exit at *J* into pipe *M*, is heated and caused to evaporate. This process is greatly aided by the fact that the space *S* above it is void of air, this having been drawn out by means of a pump, connected with the apparatus by pipe *O*. The evaporating process is continued until the contents have reached the desired consistency. The extract is then drawn off, mixed with pine-needle oil in order to give it the necessary perfume, and put up in jars.

PINE-NEEDLE FIBER.

The mass left in the cylinder *W*, after both the above-described processes are finished, is dried and put into a machine to separate and loosen the several fibers. These are then perfumed with pine-needle oil, put up in assorted packages, and sent to the different markets, where they are sold for pillow and mattress stuffing. The fiber is considered very healthy and is vermin-proof.

I hope that this report may help to open a new industry in the pine lands of the South and West of our country.

OLIVER J. D. HUGHES,
Consul-General.

COBURG, *April 21, 1902.*

THE AGRICULTURAL OUTLOOK IN GERMANY.

Not since 1836 has there been experienced in Germany, and generally throughout northern Europe, a spring so cold, late, wet, and unpromising as that of the present year. Growing crops and vegetation of all kinds are fully three weeks behind their condition at this date in an average season. Meadows and pastures have frequently been as far advanced on the 15th of April as they are now in the last week of May. Cold winds, with rain, sleet, and snow, have prevailed throughout most of this month in France, Germany, and the Netherlands. Early cherries, strawberries, and other small fruits are generally reported to have suffered severely from frost. Pears and grapes have been seriously injured in the Rhine country, and unofficial estimates assert that half of most the earlier small fruit in Germany is hopelessly lost.

Field crops, although rendered late by the lagging spring, are generally in a fairly promising condition. The returns of Prussia for the middle of May have just been published and show the following condition, as compared with that for the corresponding date of the three preceding years, it being remembered that in the Prussian

system of crop notation, 2 means a fair average crop, 3 below average, 4 meager, and 5 failure—in all cases, the higher the number the lower the rating indicated for the crop:

Article.	1899.	1900.	1901.	1902.
Wheat:				
Winter	2.4	2.8	3.8	2.5
Spring	2.4	2.7	2.6	2.7
Rye	2.7	3.3	3.2	2.8
Barley	2.4	2.8	2.5	2.9
Oats	2.5	2.8	2.5	2.9
Potatoes	2.9	2	2.7	2.9
Clover	2.7	3.2	3.3	2.9
Lucern	2.6	2.9	3	2.9
Meadows and pastures	2.6	3.3	2.8	3.2

The general crop outlook is therefore not only definitely more favorable than it was at this time a year ago, but the losses from winter killing and other causes have been far less. It will be remembered that the severe, snowless winter of 1900–1901 destroyed in East and West Prussia and Silesia so much of the growing cereals of that year that 26 per cent of the winter wheat and about 8 per cent of the rye fields were plowed up and the land mostly planted to potatoes, with the result that the largest potato crop of the past decade was grown in Prussia last year. This season, on the contrary, the total loss from winter killing, mice, and all other causes has been only 0.27 per cent of the winter-wheat area, 0.17 per cent of the rye fields, 1.05 per cent of the clover, and 0.73 per cent of the lucern.

So far as grains and meadows are concerned, German farmers are not much disturbed by a late season. There is, in fact, a local proverb which, though hardly translatable in idiomatic form, sums up the fact that a cold, late May—provided frosts are not too severe—is far better for the German husbandman than premature warmth and blossoming in March and April, to be followed later by nipping cold. From all that can be now foreseen, there is no reason to doubt that the wheat, rye, potato, barley, and clover crops of 1902 will be up to the full average of recent years.

THE PLANTING OF SUGAR BEETS.

Beyond question, the most interesting feature of the present situation is the area of sugar-beet planting throughout Germany and the other sugar-growing countries of Europe.

In a former report of this series* it was stated that as one result of the decision of the Brussels conference to abolish sugar-export

*ADVANCE SHEETS No. 1347 (May 21, 1902).

bounties from September 1, 1903, the syndicate of German sugar producers had held a meeting and sent out an earnest demand that beet growers should reduce as far as possible their beet planting for 1902, and thus aid to make headway against the enormous surplus of sugar that now overloads and depresses the European market. The result of this appeal is given in the current number of Zuckerindustrie, the official organ of the syndicate, and shows that Germany has planted this spring 423,471 hectares (1,046,396 acres), a decrease of 11.2 per cent from the area planted in Germany last year. Every province in Germany shows a decrease, and the reduction of acreage ranges from 1.2 per cent in Pomerania to 36 per cent in Baden, 45 per cent in Bavaria, and 54.1 per cent in Hesse-Nassau. Four factories, viz, Hattersheim, Hünfeld, Ossendorf, and Fiddichow, are shut down and will remain closed during the coming campaign, so that there will be only 392 German factories in commission, against 396 during the past year.

Reports from the other European sugar-producing countries show the following variations of beet area as compared with last year:

Country.	Area.		Increase.	Decrease.
	Hectares.	*Acres.*	*Per cent.*	*Per cent.*
Austria-Hungary	303,930	751,011	.....	16.2
France	223,300	551,774	.....	23.8
Russia	595,130	1,470,566	1	.....
Belgium	52,900	130,516	.....	24
Holland	31,165	77,009	.....	35
Sweden	24,236	59,887	.....	16.4
Denmark	14,500	35,830	4.8	.....

Four factories in Belgium and eight in Holland will suspend operations during the campaign 1902–3, and the mean average reduction in area of beet cultivation in these eight sugar-growing countries of Europe will be 11.34 per cent of the total beet acreage of 1901.

FRANK H. MASON,
Consul-General.

BERLIN, *May 23, 1902.*

THE SOWINGS OF SUGAR BEETS IN EUROPE.*

The late international sugar conference at Brussels reached an agreement to abolish sugar bounties,† and the question of first importance for the moment in Germany is how soon and to what extent the proposed plan will be adopted by the Reichstag, now in session at Berlin. Though the Bundesrath, under the law of 1896,

* A report on the same subject has been received from Consul M. J. Baehr, of Magdeburg.
† See ADVANCE SHEETS Nos. 1347 and 1364.

can abolish the sugar bounties, the consent of the Reichstag must be had for the reduction of the tariff. It is confidently hoped that the Brussels convention will be approved all round, and that a healthy readjustment of beet-sugar production to the market at home and abroad will ensue. The new legislation will not go into effect until September, 1903; but in view of that event and of the future increased cost of production, it was expected that there would be a large reduction in sowings already this year. Unusual interest centered on this question, and the reports gathered by the factories in the various sugar-beet countries were published a few days ago, showing the following results compared with previous years:

Country.	1902–3.	1901–2.	1900–1901.
	Acres.	*Acres.*	*Acres.*
Germany	1,046,468.5	1,178,353.2	1,095,789.7
Austria	751,184	896,231.7	939.151.6
France	551,033	695,974.4	685,391.2
Russia	1,482,600	1,467,442.9	1,356,074.9
Belgium	129,480.4	170,400.2	170,128.4
Holland	78,083.6	120,090.6	112,877.8
Sweden	59,798.2	70,342	71,271.1
Denmark	38,794.7	37,065	34,594
Other countries	195,209	210,035	181,351.6
Total	4,332,651.4	4,845,935	4,546,630.3

Country.	Production of beets.		Production of sugar.		Production of sugar per acre.	
	1901.	1900.	1901.	1900.	1901.	1900.
	Tons.	*Tons.*	*Tons.*	*Tons.*	*Tons.*	*Tons.*
Germany	16,000,000	13,252,000	2,300,000	1,984,000	1.95	1.8
Austria	8,945,000	7,408,000	1,320,000	1,094,000	1.47	1.34
France	9,351,000	8,717,000	1,200,000	1,170,000	1.66	1.62
Russia	8,305,000	6,406,000	1,110,000	919,000	.76	.67
Belgium	2,509,000	2,463,000	350,000	333,000	2.02	1.88
Holland	1,483,000	1,225,000	200,000	178,000	1.68	1.52

There is a decrease in acreage in Germany, Austria, France, Belgium, and Holland, and a slight gain in Russia. The average shortage in this year's sowings is given at about 17 per cent, which is less than had been generally expected. It is reasonable to believe that the yield will improve year by year, through careful and scientific farming, and therefore we may look forward to another large crop this year. But even if there should be only a fair average, the 17 per cent decrease in sowings would not bring about such a diminution in the production of sugar as to relieve the present glutted market, especially if the United States and the cane-growing countries should

increase their production. In other words, it is to be expected that the visible supply of sugar in the world on August 31, 1903 (the end of the European season), will continue to show an enormously overstocked market.

HENRY W. DIEDERICH,
Consul.

BREMEN, *May 25, 1902.*

PRIZE FOR METHOD OF DRYING POTATOES.

The German association of alcohol manufacturers and the association of agriculturists have jointly offered a prize of 30,000 marks ($7,143) for the best method of drying potatoes for feed for cattle, etc.

German agriculture has been increasing its potato crop very largely. The technical progress made in cultivating potatoes and the choice of certain kinds yielding a larger crop have made it apparent that Germany will continue to have a surplus of this vegetable.

Already, 40 per cent of the total crop is used as fodder; but as potatoes deteriorate after six or seven months, they must be fed within that time. Transportation, also, is expensive, on account of the large percentage of water they contain. Three and one-half tons of fresh potatoes yield 1 ton of dried ones. It is predicted that a good method of drying potatoes will greatly benefit German agriculture, and it is intended to use the process on a large scale.

Particulars for this prize contest can be had by applying to the "Institut für Gährungsgewerbe," Berlin, N. 65 Seestrasse.

RICHARD GUENTHER,
Consul-General.

FRANKFORT, *May 17, 1902.*

Under date of May 20, 1902, Consul M. J. Baehr, of Magdeburg, sends the following additional data:

Notice of entry to the competition must be sent not later than October 1, 1902.

Only those inventions will be admitted to the competition that can convert at least 10 tons of raw potatoes into dry potatoes in twelve hours. The produce must be absolutely dry, not contain more than 14 per cent moisture, and must be neither burnt nor tainted with foreign mixtures.

The potatoes destined for fodder must be digestible, and those destined for distilleries as a substitute for maize or for pressed-yeast factories as a substitute for corn must be capable of absorbing sugar easily.

The cost of production of the dried goods must not exceed 20 pfennigs (5 cents) per centner (220 pounds) of raw potatoes. The calculation of the expense must be based on a working season of one hundred days.

The papers sent in for competition must be written in German and contain—

(*a*) An exact description of the invention and the plant, with explanatory drawings.

(*b*) Samples of the produce, as well as an agreement to give all further explanations which may seem necessary to the examiners.

(*c*) A detailed account as to whether the invention has already been tried and used, under what conditions, and with what results.

(*d*) A declaration that the invention shall be open to the visit of the committee for examination and testing, at some factory to be designated, for a period of four weeks between October 1, 1902, and January 1, 1903. It is, however, allowed to have the invention ready for examination (during four weeks) before the appointed time, but in this case only potatoes of the 1902 harvest may be used for the tests.

(*e*) A declaration that the competitor undertakes to give the representatives of the prize committee at any time all information required.

(*f*) A declaration that the competitor binds himself to show his machines and plant, or models and drawings thereof, as well as the produce, at the exhibition for potatoes to be held in Berlin in February, 1903, and at the exhibition to be held at Hanover in the summer of 1903.

The decision of the committee will be known at the latest in the spring of 1903. It can award the sum either as a whole or as different prizes.

AMERICAN DRIED FRUIT IN SWITZERLAND.

At the request of a San Francisco firm,* I have investigated the subject of the importation of dried fruit into Switzerland, and I give below part of a letter addressed to me by Mr. Feller-Villiger, of Zurich, one of the largest dealers in this article in Switzerland:

The import of American dried fruit is always profitable for the seller, for the reason that no other country produces the finer kinds of dried fruit, which have for the last fifteen years been imported into Switzerland and always find a ready sale in this country, no matter whether the home crops are good or bad.

The kinds bought from the United States are principally the so-called apple rings and apricots; then follow pear chips, prunes, and peaches. The first two kinds are imported in very large quantities, unless the prices are exceptionally high.

Other countries (Germany and Bohemia) furnish the ordinary dried pears, and Turkey and Servia send plums. These kinds of dried fruit have never been offered to me for sale from the United States; in fact, I have never known of their coming from that country. These articles are consumed in enormous quantities and are very cheap, especially when the crops are good, and I do not believe that the United States could enter into competition.

The duty is favorable to the import of dried fruit; for apricots, apples, peaches, and pear chips (that is, for all kinds without stones), 15 francs per 100 kilograms

*ADVANCE SHEETS have been sent the firm.

($2.89 per 220 pounds), and for stone fruit only 2.50 francs per 100 kilograms (48 cents per 220 pounds) are charged. As long as we retain this tariff, American dried fruit will maintain its prominent position on the Swiss market.

In view of the fact that the late frost has done great damage to the fruit trees all over Europe, I believe that the prospect is good for a largely increased import of all kinds of fruits and nuts from the United States, notwithstanding the fact that the new tariff now under consideration by the Swiss Government* provides for a considerable increase in the duties on these articles.

HENRY H. MORGAN,

AARAU, *May 30, 1902.* *Consul.*

AMERICAN COAL IN SWITZERLAND.

Under date of May 31, 1902, the Aargauische Nachrichten, of Aarau, publishes the following article:

American coal will in the near future take the place of the German and English coal in Switzerland. Switzerland hitherto has been almost wholly dependent on Germany for her coal. During the last year, the German mining companies formed a combine and raised the price 2.50 francs (48 cents) a ton. The Swiss manufacturers had to accept these conditions. An English firm profited by the situation and shipped coal up the Rhine to northern Switzerland. As the cost of the English coal was 1.50 francs (28.9 cents) per ton less than the German coal, considerable orders went to England; but these orders were badly executed.

In the meantime, the American consuls in Switzerland sent reports to the United States upon the state of affairs, and a United States concern promptly seized the opportunity and offered coal at a cheaper price than either the English or the Germans. American agents appeared on the spot and solicited orders. In the French ports of Havre and Rouen, ground was bought and storehouses were erected. Agreements have been entered into with the French and Swiss railway companies to secure cheaper freight rates for the transport of coal through France. In the meantime, orders for American coal have increased largely, as Swiss manufacturers availed themselves gladly of the lower offers.

Thus, the American company has succeeded in gaining a prominent position on the Swiss coal market. Its first large shipment will arrive in Switzerland in a short time.

HENRY H. MORGAN,

AARAU, *June 2, 1902.* *Consul.*

CHEMICAL INDUSTRY IN GERMANY IN 1901.

Recently published statistics of the chemical industry in Germany for the year 1901 show that it has shared in the general business depression of the Empire, though the results are more satisfactory than in other branches of manufacture.

Among the reasons assigned for the depression are a tendency

*See ADVANCE SHEETS No. 1293 and 1309; CONSULAR REPORTS No. 260 and 261.

toward overproduction, the increased cost of raw materials, the high price of coal and of labor, and proposed changes in the tariffs on many articles which enter into chemical manufacture. It is also pointed out that in the United States, in Russia, and in several other countries, there is a growing interest in this branch.

The following figures show the imports and exports for the years 1900 and 1901. The articles included are the more important drugs, pharmaceutical supplies, and dyestuffs or materials entering into the manufacture of the same.

Year.	Imports.		Exports.	
	Quantity.	Value.	Quantity.	Value.
	Metric tons.		*Metric tons.*	
1901	1,219,889	$56,164,000	889,550	$88,298,000
1900	1,114,554	62,832,000	834,229	83,776,000

While these figures show an excess of exports over imports, and a gain in exports for the year 1901 over the preceding year, the cost of raw materials and of labor has left manufacturers but small returns for their investments.

Statistics of dividends paid by concerns engaged in this branch of manufacture during the year 1901 are not yet fully announced, but it is claimed that they will not differ greatly from those of the preceding year, when they showed a falling off. One hundred and twenty-one stock companies, having a combined capital of about $83,000,000, paid in 1900 an average dividend of 12.33 per cent, as against 13.32 per cent in 1899. Nineteen companies paid no dividends in 1900; 20 paid less that 5 per cent.

As will appear from the following figures, the gain in imports in 1901 was marked in certain articles, particularly in coloring matters:

Article.	Gain in imports in 1901.	
	Marks.	
Ammonium sulphate	4,500,000	$1,071,000
Peruvian bark	1,000,000	238,000
Iodine	750,000	178,500
Chile saltpeter	750,000	178,500
Superphosphate	2,000,000	476,000
Cyanide of potassium	1,500,000	357,000
Chloride of lime	750,000	178,500
Explosive materials	1,000,000	238,000
Alizarin	2,000,000	476,000
Aniline	4,000,000	952,000
Zinc, white	1,000,000	238,000

As is well known, the manufacture of dyestuffs, and especially of coal-tar products, has been a specialty of the Germans. This branch of chemical industry has shown a marvelous growth and has apparently yielded good returns on the money invested.

The exports of aniline colors for the past six years have been:

Year.	Quantity.	
	Metric tons.	
1901	25,029	$19,213,000
1900	23,781	18,402,000
1899	22,705	17,839,000
1898	19,712	17,131,000
1897	17,639	15,969,000
1896	16,232	15,460,000

The German manufacturer of chemicals is dependent upon foreign countries for most of his raw product and for an outlet for his goods; he is also hampered by the high price of fuel and freights, and he realizes that his main reliance is the supply of trained chemists in Germany. A summary of the statistics of this industry in the United States, taken from the recently published census returns, has been published somewhat widely in Germany; and the certainty of vigorous and increasing competition on the part of the United States in this important branch is admitted.

H. W. HARRIS,
Consul

MANNHEIM, *May 22, 1902.*

AMERICAN SHOE STORES IN GERMANY.

The sale of American-made shoes in Germany, which was begun on a small scale about 1896 by a few enterprising retailers and increased steadily by reason of the superior style and durability of the goods, has received during the past year a powerful impetus through the immediate and extraordinary success of a large, handsome, typical American shoe store which was opened in Berlin early in April, 1901. The enterprise has proven so profitable that the same management has opened a similar establishment in Frankfort, and is preparing to open another at Hamburg in September. This prompt and noteworthy success has been due to the fact that, in addition to the merits of the shoes offered, the manager—Mr. Barthmann—began in the right way by opening an exclusively American shoe store, so spacious, handsome, and characteristic in its appointments as to form an attraction on one of the most thronged streets of Berlin. Not only the entire stock of shoes, but the fixtures and

the show windows, the shelving, and the whole method of conducting the business are typically American. The goods offered represent the product of two leading American manufacturers, one of whom makes men's shoes of every kind, the other shoes in large variety for women, and every pair of shoes in the store is retailed at the uniform price of 18 marks (equal to $4.28 in United States currency).

Prior to the opening of this real American store, shoes of American manufacture had been sold in Germany at prices about equal to those of the higher grades of native custom-made foot wear. The $3 and $3.50 shoe from Lynn or Newark or Brocton was treated as a luxury by the German dealer and retailed at from 24 to 28 marks ($5.11 to $6.66) per pair, prices which put them beyond the reach of all but the well-to-do class of purchasers. The effect of the enterprise above cited has been to reduce by from $2 to $2.50 the cost of a pair of good American shoes in Berlin. The number of persons who will pay extra prices for the name of a shop or for something slightly better than the standard article is relatively small. The German, as a rule, is a careful buyer, and it is the salesman who can sell a foreign-made article superior in value to the home product, at a slightly advanced or equal price, who will capture the valuable trade of the German middle classes. Not only will the sale of American shoes be promoted in Germany by the lower prices that are likely to be introduced by the establishment of American shoe stores, but these stores will be able to handle the trade better than has been done before.

The German retailers selling American shoes have, as a rule, carried very limited stocks, which, owing to the difficulties of obtaining regular and prompt supplies from American manufacturers, were constantly becoming exhausted in certain sizes and forms, the result being that the German salesman frequently tried to sell shoes that were too large or too small or were of German make. Many shoes are made in Germany with American machinery from American models, and it is perhaps only very natural that they should be sometimes sold as American goods to the uninitiated, when there are no genuine American shoes of the correct size at hand. Examples are known where American shoes were prominently shown in the windows, were asked for by American purchasers, and yet shoes made in Germany according to American styles were sold in the place of the American article. It is really surprising and a conclusive proof of the intrinsic value of the American shoes that, in spite of the commercial disadvantages with which they have had to contend, their sale has shown a steady and substantial growth.

As to the success of the first typical American shoe store, there

can be no question. The sales room is generally crowded at all times of the day. The sales book of the establishment during a recent month showed sales running from $400 to $1,000 per day, the lowest day's sale being slightly over $400. Judging from the thronged sales room and the class of customers now attracted, it is apparent that the trade is securely established and increasing.

A German doctor—a personal friend—called my attention to his shoes bought at the American shoe store; and in explaining the reason for his preference, he said that he formerly had to go several times to have his shoes tried on by the shoemaker, wait a couple of weeks, and then the shoes were not always what he wanted. He now goes to the American store, takes two minutes, and is supplied with shoes that are satisfactory in every respect. There is but little doubt as to where the good doctor will go in future. The duty on a pair of shoes coming into Germany is at present from 10 to 15 cents, according to weight, and, after deducting charges for freight and duty, there remains undoubtedly a generous profit over the amount paid by the retailer on the shoes which he sells at 18 marks ($4.28). While Berlin is undoubtedly the most favorable place for such an experiment, there seems good reason to believe that similar enterprises in other German cities will meet with corresponding success on a smaller scale. If it be worth while to establish an American shoe store in Frankfort, there would seem to be no apparent reason why stores established at Dresden, Munich, and other cities of approximately the same size should not prove lucrative. There are two possible barriers in the way of the development of the American shoe trade in Germany—an increase in the tariff and the improvement of German shoes, owing to the introduction of American machinery and methods.

According to the proposed revision of the tariff at present under discussion before a committee of the Reichstag, the duty on imported shoes will be from 80 to 120 marks per 100 kilograms ($19.04 to $28.56 per 220.46 pounds). As to the competition of shoes made by American machinery in Germany, it has existed during the past six or seven years; and, notwithstanding this fact, there is a radical difference in the quality of these shoes, as compared with the American article. There may come a time when German shoes will equal those of American make, but they have not yet succeeded in rivaling the elegance and durability of the better grade of American shoes. Of course, business ability and an adequate capital are always necessary in the founding of any new business, and the manager of any such enterprise should have a practical knowledge of the shoe business and know something about Germany and the German language. The same opportunity which has been taken advantage of by the

shoe store at Berlin has existed for years, as the difference between the quality of the American machine-made shoes and those made in this country was greater five or ten years ago than at present. A large and valuable trade has been lost in the past by the slowness of American business men in recognizing their opportunity in this country. It is to be hoped that in the near future this trade will be systematically and energetically pushed. There would certainly seem to be room for a large wholesale house which would be in a position to supply German retailers with the different sizes and qualities of American shoes, as the purchase of shoes in America by German retailers is attended with many inevitable delays and vexations.

DEAN B. MASON,
Vice and Deputy Consul-General.

BERLIN, *May 22, 1902.*

MUNICIPAL BATH HOUSES IN COLOGNE.

This city, with a population of 384,000, owns and operates three bathing establishments, viz, the Hohenstaufen, opened in 1890, costing $166,600; the Achter street bath, opened in 1897, costing $35,700; and the Fleischmenger-gasse bath, opened in 1902, costing $78,500.

The rates for baths are:

	Cents.
Hohenstaufen bath.	
Saloon tub bath	28.5
First-class bath	19
Second-class bath	9.5
Douche bath:	
First class	9.5
Second class	4.7
Plunge and swimming baths:	
First class	9.5
Second class	4.7
Achter street bath.	
Tub bath:	
First class	9.5
Second class	5.9
Douche bath:	
First class	4.7
Second class	2

Ten first-class plunge and swimming bath tickets may be had at the reduced price of 71 cents.

There are bathing establishments on the Rhine, some of which are free; in others, adults are charged 2 cents and children 1 cent a bath.

The investment, on the whole, has proven profitable, the total

profit in 1900 having been $5,558. Previous years have shown a better result, as the summer of 1900 was one of the coldest experienced in this city for many years.

The Hohenstaufen establishment* is built of red sandstone and brick, and contains (besides the tub baths) Turkish baths, electric baths, swimming baths, douche baths, and medical baths, a restaurant, a ladies' waiting room, a barber's shop, etc.

It is open in winter from 8 a. m. to 8 p. m. and in summer from 6 a. m. to 8.30 p. m.

The average number of baths per day in 1900 was 1,196.

CHAS. E. BARNES,
Consul.

COLOGNE, *May 7, 1902.*

SEWERAGE IMPROVEMENTS IN BREMEN.

Bremen has begun to take a long step toward improving her sanitary conditions, and it is surprising that this was not done long ago.

Bremen, one of the oldest cities of Germany, with many of its structures dating back several centuries, has steadily grown until she is to-day the second commercial port of the country, and possesses one of the largest and best equipped merchant-marine fleets of the world. The population and wealth have increased proportionately, and while the census of 1890 showed only 145,000 inhabitants, the number now reaches 182,000, an increase of nearly 40,000 within a decade.

But with all its wealth—and, indeed, there is no noticeable poverty here—with its growth, its important business connections, its various enterprises, Bremen does not possess a proper drainage or sewerage system. Since 1893, the so-called "Tonnen system" has been in use. Each family has buckets with tight-fitting covers; these are placed at the door, collected at all hours, and the contents carted off in wagons.

In 1899, it was ordered that all houses built after that date on streets provided with sewers should be equipped with water-flushing closets. The city government has now decided to drain the entire city by a complete system of sewers, and connections with the sewers will be brought, free of charge, to the curbstone of each piece of property, the owner of which will at once put in a water-flushing closet.

*A diagram is inclosed by the consul. It has been filed in the Bureau of Foreign Commerce, where it may be examined.

All the sewage of the city will be carried off by main pipes to settling or clearing basins and finally emptied into a small stream called Kleine Wumme, about 3½ miles below the city. The section of country between Bremen and the Kleine Wumme is very sandy, and therefore well adapted for clarifying purposes.

This extensive improvement will create a large demand in Bremen for water-flushing closets and plumbers' specialties for bathrooms for some years to come, and it will be well for American manufacturers of such articles to take note of this fact.

HENRY W. DIEDERICH,
Consul.

BREMEN, *May 14, 1902.*

AUTOMOBILISM IN PRUSSIA.

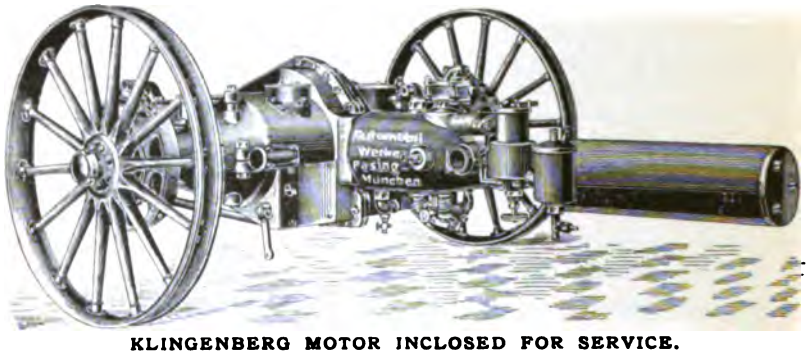
I.—THE MOTOR-CARRIAGE EXPOSITION AT BERLIN.

The Annual Pan-German Motor-Carriage Exposition was opened at Berlin on the 15th and closed on the 26th of May. As its title implies, this was not in any sense an international competition, like that of three years ago; but simply a friendly display by the Union of German Motor-Carriage Manufacturers, under the joint auspices of the German Automobile Club and the Middle European Motor-Wagon Association, which collectively includes most persons and firms in Germany who are interested in one way or another in the subject of automobiles.

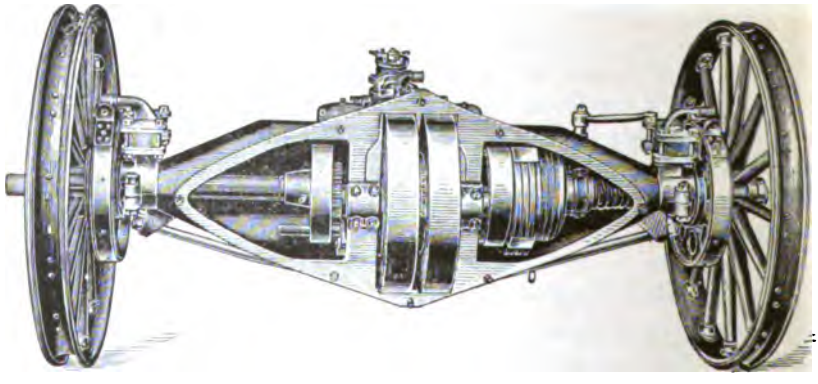
Concisely stated, it has been a mechanical display, in which each manufacturer exhibited to his colleagues, patrons, and competitors the best that he has thus far accomplished, including, naturally, such improvements as have been made since the international exposition which was held here in September, 1899. The exhibition of this year has been somewhat inadequately housed in the premises of the Permanent Motor-Carriage Association—a series of low arched showrooms under the elevated railway viaduct on Georgen strasse. The location is central, but surrounded by narrow and crowded streets, and the rooms are so small that the open court, which is ordinarily used for showing motor carriages in motion, had to be roofed with canvas to provide sufficient space to receive the various exhibits. Nowhere during the recent competition has there been any space for testing, speeding, or showing any of the machines in action, except to take them out through crowded streets to the parks or suburbs, where they remained subject to the very strict police regulations which govern the use of motor carriages in all Prussian cities. For this among other reasons the exposition just closed, while highly interesting to automobile makers and other experts in

construction, has been lacking in interest as a popular entertainment. So far as could be judged by the attendance the general public took but a languid interest in the display, and nine out of every ten persons to be met there were either owners of some kind of motor carriage or technically interested in their manufacture.

The list of exhibitors includes 105 firms, all German except two, one of which is a maker of springs and axles at Paris and the other a manufacturer of small fixtures at Budapest. The United States was represented by one article—a polishing powder for metals—exhibited by the American Trading Company, of Berlin. All the great German manufacturers of motor carriages—Benz, Opal, Dürkopp, Daimler, Kühlstein, the factories at Eisenach, Leipzig, Nuremberg, and Marienfelde—were represented by their latest and best work,



KLINGENBERG MOTOR INCLOSED FOR SERVICE.



SECTION SHOWING ARRANGEMENT OF WORKING PARTS.

and the display included about eighty vehicles of every type, from the ponderous 12-ton freight wagon or eight-seated "tonneau" to the motor bicycle, of which latter there was a large and interesting display from not less than seven different manufacturers.

It required but a glance through the rooms to show that the leading German builders have made great progress in automobile construction since 1899. Not only are the carriages in general lighter, more shapely and elegant in outward finish, but they conform more closely in model and relation of parts to modern standards of construction, as typified by the leading French machines. For reasons which will be hereinafter explained, steam carriages formed no part of the display. Electric automobiles were there, but so few in number and so unchanged from the types of three years ago as to form only a passive feature of the exposition, in which the gasoline and alcohol motors were supreme.

Of the sixty or more vehicles on exhibition, at least five-sixths were of the general type of the Mors and Panhard racing machines which are so well known in America—that is, with gasoline motors placed high in front, and transmitting the driving power either through chains or a longitudinal shaft and beveled gearing to the rear axle and wheels. Two makers—the Benz Motor Company, of Mannheim, and the Dietrich Company, of Niederbronn, in Alsace—still utilize their plan of power transmission from motor to driving wheels by means of a belt and pulleys. The one real novelty in this line is the device of Professor Klingenberg, exhibited by the Motor Fabrik Pasig-Munich, in which the motor, inclosed in a dust-proof sheath, rests upon and is geared directly to the rear axle of the carriage. The axle is in two sections, connected at the center by a complicated device, the details of which are shown in the foregoing cut, and which provide for differential motion as between the two hinder wheels and couplings for different rates of speed. The idea seems to have been adapted from a tricycle of French origin, and its application to a motor carriage is ingenious and interesting. The motor works directly on the driving shaft with the maximum economy of power; the working parts are not only securely inclosed and protected from mud and dust, but work in a bath of oil, which secures perfect lubrication. On the other hand, it has the ominous disadvantage that the motor, with all the complicated and delicate mechanism of transmission and differential movement, rests on the axle without springs, and would therefore, in the opinion of critics, be soon shaken out of service by the vibration of travel over a rough road. For exclusively city use, over good pavements, this method of construction—which eliminates chains, cogs, and belts—might prove effective, but for open-country touring its durability is thought to be questionable.

The dominant note of this exposition has been the evidence everywhere made manifest of a general and notable improvement in many details, not only in the construction of motor carriages, but

in the many fixtures connected with their use for pleasure, sporting, or business purposes. Three years ago few of the carriages exhibited were provided with ball bearings; now they are universal and of unsurpassed quality. The puffing, noise, and vibration formerly so disagreeably incident to all hydrocarbon motors, although not yet overcome, has been greatly reduced by the inventions of the past three years. The same improvement is noticeable in pneumatic tires, in the greater lightness and beauty of wheel construction, in which slender metallic hubs with ball bearings, light but strong wooden spokes, and improved methods of fastening and removing tire mantles have been utilized.

The whole subject of electrical igniters for gas and spirit motors has made great progress in Germany during recent years, and the exhibition included several kinds which furnish an effective and reliable spark with a minimum consumption of current. Some of these are fed from storage batteries; in other cases the current is generated by a Rumkorff coil or a small dynamo carried in the automobile and driven from the axle. Among many improved fixtures were a set of reservoirs in which benzine can be kept with the greatest measure of safety, the tank of a motor carriage filled by a device which registers automatically the amount of fluid taken and indicates by a dial at any moment the quantity remaining in the tank. This system is a check upon the tendency of some chauffeurs to overcharge their employers for gasoline consumed.

II.—THE PROGRESS OF AUTOMOBILISM IN BERLIN.

As stated at the beginning of this report, the attendance at the recent exposition was mainly confined to persons technically interested in automobile manufacture, and the general public took but a languid and incidental interest in the display. This was the result of several causes—the restricted quarters in which the show was held, the absence of races or other open-air tests or exhibitions of machines, and, finally, because automobilism as a means of locomotion, sport, or recreation is still in the development stage in Germany. Notwithstanding all the energy, ingenuity, and enterprise of various German builders, their sales have been in many cases slow and discouraging, and the number of motor carriages in actual use for travel and sporting purposes is relatively small. The Deutscher Automobil Verband, which lent its aid to the recent exposition, comprises the sixteen clubs, which have an aggregate membership of about 900 persons and collectively include the automobile public of Germany. These clubs are located at Berlin, Dresden, Frankfort, Halle, Munich, Hanover, Cologne, Leipzig, Strassburg,

Bielefeld, Freiburg, Nuremberg, Hamburg, Breslau, Stuttgart, Düsseldorf, and Schœneberg. They are in general well organized and efficiently managed; but there has been thus far in Germany no such popular interest in automobilism as has been seen in France, England, and the United States. This is apparently the result of a combination of causes, among which may be cited the very strict and rigidly enforced police regulations to which all motor carriages are subject throughout Germany, and the fact that during the past two years the independent and leisure classes of people have suffered losses through the depression of business and depreciation of industrial and other securities, and have been therefore slow to invest in a luxury so costly and complicated as an automobile. There has never been—probably never will be in Germany—any such surrender of the public streets, parks, and country roads to motor carriages as has been seen in France, or even in Italy and Austria. Throughout Prussia, the rate of speed permitted within municipal limits is limited to 12 kilometers (7.45 miles) an hour, and if this rate is exceeded there is inevitably a policeman in sight to halt the offender and bring him to justice. The result of the Paris-Berlin race of last year was to deepen and confirm the conviction of German municipalities that the automobile is an intruder to be handled with firmness and discretion.

Finally, the average German is a discreet, conservative, intelligent purchaser, who considers carefully and well before investing in any new thing which he does not fully understand. In respect to automobiles, he knows that while the German builders have made during the past few years great progress in respect to certain details of construction, while the motor carriages now turned out are distinctly superior and even cheaper than those hitherto offered, there is as yet no definite agreement between makers or users as to what an automobile should be. The vehicle is still in the development stage, and has yet to be standardized, even in its most essential parts. The motor carriage has yet to be so perfected in construction that, like the bicycle, its parts can be made interchangeable without special fitting by an expert workman. As a consequence, each vehicle is still an original and individual construction, and its cost unduly great. Three years ago, it was thought that the electric carriage—or perhaps a combination of gasoline and electric motors that could be made self-sustaining and independent—would be the machine of the future. Now, the electric vehicle has been practically abandoned because it requires an expert electrician to manage it, and is, moreover, generally heavy, costly, and limited in working radius to the neighborhood of towns with electric lighting or power plants. It is therefore set aside to await the further development of the

storage battery; and, as steam carriages are not yet permitted to be used on public streets in Prussia. the hydrocarbon motors now have the field to themselves. The gasoline vehicle, although greatly improved, is still more or less noisy, malodorous, and subject to vibrations that constrain the intending purchaser to wait still longer before choosing a machine.

III.—STEAM CARRIAGES IN PRUSSIA.

Under such general conditions, it was naturally thought that American steam carriages of the runabout type, which are cheap, easily managed, and run without smell, noise, or unpleasant vibration, would find a ready and appreciative market in Germany. One of these machines, built by the Locomobile Company of America, was brought to Berlin in the winter of 1901 and attracted much favorable attention. But when the new code of automobile regulations went into effect in April, 1901, a special license became necessary, and it was found that the American locomobile collided at eight points with the Prussian law governing the construction and use of steam boilers. This elaborate and comprehensive statute was enacted on March 9, 1900, before the motor carriage had become a factor in transportation. It comprises forty-five sections, which prescribe with minute and elaborate precision every detail in the construction and use of steam boilers. Having been made for stationary and locomotive engines, these specifications naturally could not be adapted, unchanged, to automobiles; and, as a consequence, the steam carriage, although licensed in Austria, Saxony, and Bavaria, has been thus far practically excluded from Prussia. During the past six months, however, a movement has been organized and carried through by which the statute has been amended so as to permit the use of steam carriages which fulfill in their construction certain conditions. Under these revised conditions, the locomobile of America has been granted a concession—not yet officially issued—to be sold and used throughout Germany upon condition that three trifling modifications shall be made in its construction. One of these requires that a certain tube shall be 15 instead of 10 millimeters in caliber; the second relates to the outer shell of the boiler; and the third requires the water-gauge cocks to be pierced in front so that any stoppage from dirt or boiler scale can be detected and removed. With these slight and inexpensive changes, the locomobile will be admitted to what is practically a virgin field for steam vehicles, and when converted—as it easily can be by a slight change in its gasoline burner, so as to adapt it to alcohol as a fuel—its success would seem practically assured. The whole influence of the

German Government is directed toward the substitution of crude alcohol for petroleum products wherever possible, and makers of motor carriages and other machinery for this country should take that fact into account.

FRANK H. MASON,
Consul-General.

BERLIN, *May 29, 1902.*

GERMAN TRADE IN TOOL MACHINERY.

Germany imported only 1,872 tons of tool machinery in 1901, against 7,072 tons in 1900. The first three months of 1902 show a further decrease, there being imported only 251 tons, while in 1901 it was 615 tons and in 1900 2,235 tons.

The export also declined in 1901, but not to such an extent, the figures being 10,194 tons in 1900 and 9,115 in 1901. During the first quarter of 1902, however, it has increased, amounting to 2.649 tons, against 2,300 tons for the same period in 1901.

Germany imports tool machinery chiefly from the United States, but these imports have greatly declined. In 1900, they amounted to 5,233 tons and in 1901 they were only 1,282 tons. It would appear that there is a development in the manufacture of tool machinery in Germany, in spite of the general business depression, and that the manufacturers are not only controlling the home market, but increasing their exports.

The decrease of imports of tool machinery from the United States is probably due to the flourishing condition of business there, which causes manufacturers to neglect the export trade to Germany. German makers seem to be taking advantage of the situation.

JOSEPH J. LANGER,
Consul.

SOLINGEN, *May 10, 1902.*

GERMAN AND EUROPEAN GLOVE INDUSTRY.

Germany has of late years greatly increased her facilities in the glove-making line, and has overshadowed France, in quantity of product at least. At the present time, 1,100 German concerns are engaged in this industry, the total output of 85 factories being for export only. All but 100 of the factories are entirely occupied with the kid-glove industry. Germany also has 100 tanneries for kid and forty-odd for shoe leather. The latter product, however, can not approach, either in quality or finish, the material turned out by the

tanneries in the United States. The glove industry is scattered all over the German Empire, Thuringen and the Kingdom of Saxony having the most factories. Other European nations interested in the manufacture of gloves are: Austria-Hungary, 350 factories, nearly all at Vienna and Prague; France, 225 factories, with trade headquarters at Paris, Grenoble, and Chaumont; England, about 190 factories, situated in London and Worcester; Italy, 100 factories, at Naples, Milan, and Turin; Sweden, 60 concerns, mostly at Stockholm and Malmo; Norway, some 50 factories, scattered over its land; Spain, about the same number; Russia, some 25 large concerns and about 10 smaller; and Belgium, with her only important makers (very few in number) at Brussels.

I had a chance the other day to compare American gloves with those made in Europe, and I must say I felt proud of the work accomplished by our makers, especially in finish and the way they fitted the hand.

OLIVER J. D. HUGHES,
Consul-General.

COBURG, *April 24, 1902.*

ICE MACHINERY AND REFRIGERATORS IN GERMANY.

According to German papers, the mild winter has caused a scarcity of ice and has led the brewers' society to investigate ice machinery. This would open a wide field in Germany, which should be taken advantage of by American manufacturers; but this work must be done by active American salesmen and not left in the hands of local German houses. It is best, also, to patent all goods in Germany before placing them on the market, to prevent imitations and infringements.

There is also a good opening for American ice boxes in this country, especially in the small, cheap kinds. A couple of years ago, a large New York house sent a quantity of ice boxes and chests to the Leipzig fair, where they created quite a sensation. They sold well, and the prospects for trade were excellent; but the house made the mistake of putting its goods into the hands of a firm in another city, which understood nothing of the handling or use of ice boxes. As a result, no business was done. Germans who have seen the up-to-date ice boxes at this consulate have asked where we got them, their cost, etc., and have signified their desire to buy.

OLIVER J. D. HUGHES,
Consul-General.

COBURG, *May 17, 1902.*

SOME GERMAN OPINIONS OF BORAX FOR PRESERVING MEAT.

On May 9, an important convention was held at Berlin by a number of scientific men, to enter a protest against the enforcement of the new law prohibiting the use of borax and boracic acid in preserving meats and other food articles, which law is to take effect next fall and will practically prohibit the importation of a large quantity of American preserved meats into Germany. The leading spokesman in this convention was Prof. Dr. Liebreich, of Berlin, one of the ablest pharmacologists of this country, who took strong ground against the new law. He admitted that if it were possible to use all our food articles in their natural condition without changing them or adding to them, as strict hygienists insist we should, it would be an ideal situation; but he maintained that it is an impossible one. Scientific investigation and practical experiments had shown that the reasons urged by the Bundesrath for promulgating the new meat-inspection law were entirely untenable, and he insisted that before any governmental department should declare articles of food to be injurious to health and dangerous to human life it should use the greatest care in making sure that its information and its conclusions were indisputably correct. He further averred that the only safe way of reaching conclusions on this subject was through experiments made with the preserving chemical upon the human system; therefore, he would not consider experiments made with animals, for many animals were entirely proof against certain poisons, while others were sensitive to things that had a harmless effect upon man.

He strongly advocated the use of borax, but emphasized its proper use, reminding his audience that the immoderate use of pepper and mustard is also injurious to health. He argued that it would be a bad practice to prohibit the use of foods to people generally, simply because they might not be good for children and invalids; otherwise, it would be necessary to prohibit by law the use of sauerkraut and pork. It would have been more reasonable, he declared, to have officially stated exactly what quantities of boracic acid are injurious, and the meat packers would have been governed accordingly.

Other speakers in the convention continued in the same strain, contending the utter harmlessness of borax upon the mucous membrane of the stomach and intestines. One of them called attention to the fact that the British Government, after careful and extensive

investigation, had recently announced that it saw no reason for prohibiting the use of boracic means of preserving food articles.

Dr. Gerlach, of Wiesbaden, declared that boracic acid had been in use for decades among civilized nations as a means of preserving, and there had been ample time for showing definitely any evil effects, but no complaints had been heard from the people, and this new law came without any warning.

Finally, the convention unanimously adopted the resolution that "the prohibition of borax and boracic acid for the preservation of food articles, as decided upon by the Bundesrath, is not to be justified and can not be supported by facts."

HENRY W. DIEDERICH,
Consul.

BREMEN, *May 17, 1902.*

GERMAN CHAMBERS OF COMMERCE AND COMMERCIAL EDUCATION.

A short time ago, the Zwickau Chamber of Commerce wrote to all the various chambers of commerce and commercial bodies in the German Empire, asking what part was taken by them in supporting commercial education, the sum expended, what supervision of schools was exercised, etc.

The following answers from all parts of the Empire speak for themselves:

Aix la Chapelle.—The chamber of commerce uses every means in its power to promote commercial education. At the beginning of every school year, the chamber publishes in the press of the city the studies scheduled for that year, and always embodies the school reports in the annual yearbook of the chamber.

Altona.—There is one commercial school with indirectly enforced attendance. The chamber of commerce has been instrumental in forming a commercial school in the suburban town of Elmshorn. In Neumünster, a similar school is maintained by the merchants' union and town corporation. Through the influence of the chamber of commerce, many commercial subjects have been introduced into the public schools of Altona.

Arnsberg.—The commercial school was founded by the chamber of commerce. The sum of $32 is given annually toward its maintenance, and the chamber has full control. Prizes are given to worthy students, and members of the chamber often act as examiners. The commercial school in Neheim also receives $25 annually from this chamber.

Barmen.—The chamber of commerce has founded a commercial school, to which it gives $285 annually. Four members of the chamber, together with one representative of the city and two members of the merchant union, form the board of trustees. The chamber uses all its influence to promote the interests of the school.

Baireuth.—This chamber of commerce is at present using its influence with the Government to secure the teaching of commercial subjects in the public schools of the district. Compulsory attendance has been recommended.

Berlin.—The merchants' corporation of Berlin has supervision over six commercial schools, to which it gives a subvention of $10,000 annually. In addition, the corporation gives $550 to an institute which prepares young girls to fill positions in business houses, $250 to the Humboldt Academy, and $1,000 to the city weavers' school. The corporation also gives $1,250 each semester for the benefit of young men who wish to hear lectures on the science of commerce, etc. The corporation would like to see the attendance of apprentices at these schools made compulsory.

Bingen.—In 1888, a course on commercial education was secured to the schools of this city through the initiative of the chamber of commerce. The annual deficit (which amounts to $100 to $175) is made good by this chamber. The president and two members serve as directors.

Bochum.—There are four commercial schools in this district, to which the chamber of commerce gives $300 each year. The members of the chamber are now agitating in favor of a fifth, which will in all probability shortly be established.

Bonn.—The chamber of commerce has established a commercial school and gives $75 annually toward its support. In addition, the State, the city, and many business firms give voluntary contributions to its maintenance. Five members of this chamber belong to the school board. Prizes and books are granted diligent students, and any deficit which may occur is paid. Steps have been taken to organize a second commercial school.

Brandenburg.—This chamber of commerce has organized three commercial schools in as many suburban towns, and affiliated them with the one in this city. The chamber controls these schools, and contributes one-third of the expense which is not met by tuition. The other two-thirds are raised by the State, private individuals, business firms, etc. Attendance is compulsory for apprentices until they have passed their eighteenth year. The Brandenburg Chamber of Commerce contributes annually the sum of $40 to each of the commercial schools in Wittenberge and Kyritz, which entitles it to one member on the school board, thus giving it a voice in the arrangement of studies and the disposition of funds.

Brunswick.—The chamber of commerce has established ten obligatory commercial schools in the Duchy of Brunswick and has full supervisory control over the same. The chamber makes good one-third of the deficit which may occur in any one school year. In 1901, the sum thus paid out amounted to something more than $1,000. It has established a free course of study for girls employed in commercial houses; it gives a small sum of money each year for the purpose of enabling the teachers in these schools to travel through the different districts of the duchy, in order to thoroughly study economic conditions. A collection of all the industrial products of Brunswick has been placed on exhibition for the benefit of apprentices. There is a library in German, French, and English literature for teachers and students, and prizes are also granted.

Breslau.—The commercial school receives $250 annually from the chamber of commerce. There is an institute in the city which teaches commercial subjects to young women, and $100 is given every year toward its support. The chamber of commerce has members among the directors of both these institutions. An industrial school is to be established this year, and the chamber of commerce has agreed to pay all expenses not met by school tax, tuition, etc.

Cassel.—The commercial school in this city, which was established twenty-five years ago, has passed entirely under the management of this chamber of commerce, which has erected a building from its own funds as a home for the school.

Coblenz.—The chamber of commerce gives $125 a year toward the support of a commercial school in this city. Members of the body are on the school board.

Danzig.—The president of this chamber is one of the directors of the commercial school in this city. The chamber of commerce gives an annual stipend of

$2,000 toward the maintenance of commercial courses in the public schools of St. Petri.

Dessau.—The sum of $250 is given each year toward commercial education. The chamber of commerce further grants a stipend which enables teachers to hear lectures on commercial topics during vacations.

Dortmund.—The chamber of commerce gives $900 annually to the commercial school in this city.

Dresden.—The chamber of commerce maintains a commercial school, and the president of the chamber is chairman of the board of trustees.

Duisburg.—The commercial school in this city was founded jointly by the chamber of commerce and the city corporation. The chamber gives $250 yearly toward its support.

Düsseldorf.—The commercial school of this city was founded by the chamber of commerce independent of outside assistance. It gives $400 every year toward its expenses. In addition, a course of lectures on the science of commerce, for the benefit of young business men, has been introduced. Beginning with April 1, 1902, attendance at the industrial school of Düsseldorf will be made obligatory. The chamber of commerce will so arrange the curriculum of the commercial school as to enable the two schools to work hand in hand.

Elberfeld.—The chamber of commerce gives $300 a year to the commercial school in this city. In addition, the school receives from the chamber the interest on $700 annually.

Frankfort on the Main.—The chamber of commerce gives $150 yearly toward commercial education in this city.

Frankfort on the Oder.—Within the past three years, the chamber of commerce has founded five commercial schools, all of which are directly under the management of the chamber, which supplies whatever funds are needed. The deficit made good by this chamber in 1901 amounted to $175. The secretary of the chamber is chairman of the board of trustees. The secretary also gives lectures throughout the district to business men who may be interested in commercial questions of the day. It is possible that four more commercial schools may be founded in this district during the next two years.

Freiburg.—The commercial school was founded by the city corporation. The chamber of commerce gives about $100 annually, which is used chiefly for prizes. Beginning with April 1, 1902, a course of lectures on commercial subjects will be introduced for the benefit of young women.

Friedberg.—The commercial school in this city was founded by the chamber of commerce, and receives $100 each year toward any deficit which may occur.

Geestemünde.—The chamber of commerce founded the commercial school in this city. The sum of $100 is given each year, as well as prizes to diligent students.

Giessen.—The three commercial schools in this city receive $125 a year from the chamber of commerce.

Görlitz.—An annual stipend of $400 is given by the chamber of commerce to the commercial school in this city. Two of the members belong to the school committee.

Göttingen.—The commercial school in Münden receives $50 a year from this chamber of commerce. One member of this chamber belongs to the board of trustees. It also gives $50 to the commercial school in Osterode.

Greiz.—The commercial school receives $150 a year from the chamber of commerce.

Graudenz.—At the instigation of the chamber of commerce, a commercial school has been founded in this city in connection with the industrial school; $300 is given each year toward its maintenance. No changes can be made in the course of study

without the consent of the chamber of commerce. It is trying to establish other commercial schools in the district.

Hagen.—The commercial school in Hagen, together with the one in Gevelsberg, receive conjointly $150 from the chamber of commerce; $25 a year is further donated for library purposes.

Halberstadt.—Through the instrumentality of the chamber of commerce, ten commercial schools have been established in as many cities in the district. One member of the chamber is on every school board. Lectures are maintained during vacations for the benefit of teachers. The chamber pays $1,500 annually for the maintenance of these schools.

Halle.—Three commercial schools have been founded in this city through the united efforts of the municipal authorities, the merchants' union, and this chamber. Each organization pays $50 a year on the deficit.

Hanau.—The commercial school was established through the efforts of the chamber of commerce. One of the members is on the school board. In addition, the chamber has caused a commercial school to be established in Fulda. A commercial course for young women has also been arranged for in this city.

Hanover.—The chamber of commerce has no official connection with the commercial school in this city. School tax, tuition, etc., adequately meet the expenses of the school.

Heidelberg.—The commercial school receives $100 a year from the chamber of commerce. Two of the members are on the school board. An advanced course in modern languages and economics has been arranged for by the chamber.

Heilbronn.—This chamber gives $25 a year to be distributed as prizes to worthy and diligent students, and one of the members is on the commercial school board.

Hildesheim.—The commercial school in Hildesheim and Peine receives $400 a year from the chamber of commerce. A commercial school is shortly to be established in Alfeld.

Insterburg.—The commercial organizations of this city, with the assistance of the Government, founded a commercial school here some years ago. Members of the chamber have the right to attend the examinations. They intend shortly to set aside a sum of money for premiums.

Cologne.—The chamber of commerce watches with great interest the development of commercial education in this city. Through its influence, evening courses have been arranged for those who have no time to attend the day courses. The commercial school of Cologne was founded and is supported by the municipal authorities of the city, acting for the people. The chamber used its influence in securing the Commercial University for Cologne in 1901.

Königsberg.—Through the initiative of the municipal authorities, a commercial school with twelve classes has been in progress since the beginning of the year. Attendance is compulsory. This commercial organization gives $225 a year toward its maintenance.

Constance.—Two members of this chamber serve on the commercial school board in the city. All the members are permitted to attend the examinations. The chamber of commerce gives $15 a year for the purchase of prizes.

Crefeld.—The commercial school in this city was founded by the chamber of commerce, and receives annually the sum of $1,500 toward its support. One of the members belongs to the school board. The chamber intends to donate a library to the school in the near future.

Lahr.—Two commercial schools were established in Lahr and Offenburg, at the instigation of the chamber of commerce. Attendance is compulsory for apprentices. The president of the chamber is on the board of trustees. Each school receives $10 a year for the purchase of book prizes. The commercial school in this city has recently passed under the management of the municipal authorities.

Leipzig.—This chamber of commerce pays $4,000 annually for commercial education in this city. This sum is raised by private subscription from the members of the chamber.

Liegnitz.—This organization has the management of the commercial school in this city; $200 is given yearly toward its support. Prizes are granted to ambitious students.

Limburg.—This chamber of commerce is at present negotiating with similar organizations in other cities of this district with a view to establishing a commercial school.

Lübeck.—In 1873, a commercial school was founded in this city for the benefit of apprentices, which receives $250 a year from the chamber of commerce. Another school is being organized by the chamber.

Mannheim.—This chamber of commerce gives $250 annually to the commercial school in this city. It also maintains a lecture course on commerce and economics, the funds for which are raised by the chamber conjointly with the merchants' union and bourse. It is probable that attendance at the commercial school will be made obligatory in the near future.

Magdeburg.—The commercial school in this city is maintained equally by the State, municipal government, and the chamber of commerce. The city places a building free of charge at the disposal of the school. The aggregate sum paid for maintenance, in addition to school tax, tuition, etc., amounts to $5,000 per annum, $1,500 of which is contributed by the chamber. Special courses have been introduced into this school in foreign languages, rapid calculation, double-entry bookkeeping, stenography, etc. These courses thus far have been self-supporting, but if a deficit should occur it must be made good by the chamber and the merchants' union of this city. In addition, the chamber of commerce has arranged for ten scientific lectures on commerce and economics for the merchants of this city. The expense of these amounts to $500 a year, which is partly paid from the interest on $4,000 capital donated for this purpose by one of the citizens and partly from admission fees. During the past year, however, this chamber made good a deficit of $250 for these lectures. The total sum expended by this chamber of commerce for commercial education amounts to $2,000 annually, or fully 15 per cent of the total expenditures.

Mainz.—There is a commercial school in this city which receives $75 a year from the chamber. There is a movement on foot throughout the Grand Duchy of Hessen to thoroughly reorganize all the commercial schools, beginning with the one in Mainz. On the 1st of April, 1902, the commercial school in this city passed under the management of the chamber of commerce.

Meiningen.—In 1884, a commercial school was established by the chamber of commerce. The yearly expenses are paid by school tax and tuition.

Münden.—In 1898, the chamber of commerce established an obligatory commercial school, which has an attendance of about 150 pupils, divided into four classes. The secretary of this chamber formerly gave a course of lectures on commerce and economics. The annual deficit, if any, is met by the municipal authorities. The efforts of the chamber of commerce to establish an obligatory commercial school in Bünde have thus far failed, owing to the antagonism of the town council of that place.

Mühlhausen in Thüringia.—The city and chamber of commerce founded the commercial school in Mühlhausen. One hundred and twenty-five dollars a year is given toward its support, this sum being raised by a direct tax on the business firms of the city.

Mülheim on the Rhine.—A commercial school was founded in the Mülheim district by the chamber of commerce, which gives $75 a year toward its support. The president of the chamber is chairman of the board of trustees.

Mülheim on the Ruhr.—The commercial school in this city, which was founded by the merchants' union, has passed under the management of this chamber of commerce. Its gifts to the school amount to about $250 a year. The president of the chamber is chairman of the board of trustees.

Münster in Westphalia.—The commercial school in this city will open on the 1st of April, 1902. Attendance is obligatory for apprentices and those holding positions who have not passed the age of 18. The State and municipal government each pay one-third of the expenses that are not met by tax and tuition. The rest is paid by the chamber of commerce and the merchants' union. The board of curators is made up of representatives of the Prussian Government, the city, the chamber of commerce, and merchants' union.

Nuremberg.—The chamber of commerce gives an annual stipend to the commercial school in this city.

Offenbach.—The commercial school in this city was founded by the chamber of commerce. The yearly deficit, if any, is paid by the members. In addition, the building, heat, light, and $75 extra each year are furnished by the chamber.

Oppeln.—There are thirty commercial schools in the district covered by the work of this chamber of commerce. These schools receive annually about $4,000 from the Government, the chamber, and the various communities interested. A movement is on foot at present to thoroughly reorganize all these schools. This chamber has offered to pay the salary of a director who will superintend them.

Osnabrück.—The commercial school in this city was founded by the chamber of commerce and the merchants' union. Two of the members are on the school board, and the secretary is director. Steps have been taken by this chamber to organize similar schools in other towns of this district.

Plauen.—The chamber of commerce uses every means in its power to promote commercial education in this district.

Posen.—The chamber furnishes funds to three different commercial schools. It has a member on each of the school boards.

Potsdam.—The commercial school in this city was founded by this chamber. The deficit, if any, is met equally by the Prussian Government, the city, and the chamber of commerce. During 1901, the total amount thus expended was something in excess of $500. The first vice-president and two members belong to the board of curators.

Ratisbon.—The chamber of commerce gives $250 a year to the commercial school in this city.

Ruhrort.—The commercial school was founded by the chamber of commerce, which contributes $500 a year toward its support. The members of the chamber are on the board of curators. During the winter months, some twenty lectures on commerce and industry are given for the benefit of merchants. The expense of this course amounts to about $200, which is raised by admission fees.

Saalfeld.—Three commercial schools receive funds from the chamber of commerce. Several of the members are on the school boards. Lecture courses are also given by the chamber.

Saarbrücken.—The chamber of commerce gives $40 a year to the commercial school.

Solingen.—The commercial school was founded by the chamber of commerce conjointly with the city. The chamber gives $150 and pays one-third of any annual deficit.

Sonneberg.—The municipal authorities have charge of the commercial school. The chamber of commerce gives $75 a year toward its maintenance. The following subjects are obligatory: German, English, French, arithmetic, geography, elementary economics, and penmanship.

Soraw.—The chamber and the merchants of the city have established three commercial schools in this district.

Stettin.—The merchants' organization gives $150 toward the maintenance of the commercial school.

Stralsund.—There is an evening commercial course in this city, which receives $25 a year from the chamber of commerce.

Strassburg.—In common with the city, the chamber of commerce has assisted in establishing a commercial school and gives $500 annually to its support. Four of the members belong to the board of trustees. In addition, this chamber contributes to a fund which enables teachers to attend lectures on commerce and industry during their vacations.

Thorn.—The chamber of commerce grants $200 annually to the three commercial schools situated in this district.

Tilsit.—There is a commercial school in this city. One-third of the deficit, if any, is defrayed by this commercial organization, the other two-thirds by the city.

Trier.—The commercial school was founded by the chamber of commerce, several members of which serve on the board of curators. Prizes, etc., are granted by the chamber.

Wiesbaden.—The chamber of commerce has founded two commercial schools in this district. One-third of any deficit is paid by members of this body.

Würzburg.—The school for apprentices in this city receives $25 a year from this chamber. Prizes are granted to two pupils each year.

Zittau.—The chamber grants small allowances to several commercial schools in this district. It has also donated books to the different libraries.

RÉSUMÉ.

There are 145 chambers of commerce, or similar organizations, in the German Empire. Of this number, 112 are actively engaged in promoting commercial education. The inactivity of the others, for the most part, is owing to the fact that they have only been recently established, or that commercial education in their districts is maintained by the merchant unions or by municipal governments. The following résumé will give a very clear idea what commercial education in Germany owes to the Empire's highly organized and powerful chambers of commerce:

I. The statistics for 1901 * show that 22 chambers of commerce gave $15,652 in cash to 44 commercial schools, which work entirely under their own management. Six chambers paid one-third of the deficits in 12 commercial schools with independent management; the amount is not stated. Forty-eight chambers of commerce voted the sum of $13,030 to 102 commercial schools, which were more or less controlled by these chambers. Eight chambers of commerce paid part of the deficits of 18 commercial schools, which were partially under their management. Twenty-four chambers of commerce gave small sums to 31 commercial schools for the purpose of buying

* From volume 20 des Deutschen Verbands für das Kaufmännische unterrichtswesen, Leipzig, Verlag von B. G. Teubner.

prizes, books, etc. Four chambers devoted $1,697 to independent lectures on commerce and industry.

II.—Twelve chambers of commerce give prizes in the shape of books, money, stipends, etc.; in 24, the members take part in the examinations; in 6 chambers of commerce districts, the secretary of the chamber makes tours of inspection among the schools; 63 chambers have members on the school board of directors; 8 have arranged lectures for clerks and others holding minor positions in business houses; 3 have arranged for teachers' conferences; while 1 has appointed a commission to examine all important school subjects, and another has established an industrial exhibition.

The above sketch of the work of German chambers of commerce along the line of commercial education can not be looked upon as exhausting the subject. German merchants and manufacturers tell me that they are just beginning to take an interest in the matter of education. For example, 8 chambers of commerce are at present busy with reorganizing and extending the commercial schools in their districts; 13 are agitating in favor of such schools; 7 are working to secure obligatory attendance for their schools; 6 have declared their willingness to give pecuniary assistance to the schools in their districts, if certain conditions are complied with; 6 are contemplating assuming the management of the schools in their districts, and several wish to appoint directors at the chamber's expense, introduce lectures, establish libraries, and grant prizes.

In a former report to the Department,* I described in detail what is being done for commercial education in Saxony. In order to prevent confusion, however, it would be well to look at the German Empire as a whole, and divide commercial education into five distinct grades:

I.—Primary commercial schools (Kaufmännische Fortbildungsschulen).
II.—Commercial schools (Handelsschulen).
III.—Advanced commercial schools (Höhere Handelsschulen)
IV.—Classified commercial courses (Handelsfachklassen).
V.—Commercial universities (Leipzig and Cologne).

It is to the primary commercial schools that German chambers of commerce give financial assistance, and it is only these schools which I have had in mind in the above report.

It will be seen, therefore, that Germany pays almost as much attention to trade education as she does to any other branch of instruction, and the methods adopted might be taken up with advantage in the United States by our chambers of commerce and other

* See ADVANCE SHEETS No. 915; CONSULAR REPORTS No. 245.

commercial organizations. What the different nations produce, what they import and export, political economy, German, Spanish, French, and the details of commerce and industry should be known to every progressive manufacturer, merchant, and business man.

ERNEST L. HARRIS,
Consular Agent.

EIBENSTOCK, *May 20, 1902.*

TRADE UNIONS AND ASSOCIATIONS IN GERMANY.

The following translation from a recent publication of the imperial commission throws much light upon the condition of trade unions in Germany:

Germany up to the present time has 145 chambers of commerce and trade and 10 of agriculture. Around these are grouped the people's industrial council, the German agricultural council, and the land-economy colleges. The interests of traffic are represented by the home railways' council. The learned professions are regulated by councils of doctors and lawyers. Besides these, there are various independent associations to protect the interests of manufactures, trade, and traffic, and other unions to represent special classes and callings, namely, the union of German smelters, the great associations of architects and engineers, the German fishery union, the inland shipping union, the householders' and tenants' unions—all of which have been established throughout the land for all the more important occupations and branches of industry. It is not alone the independent workers who have thus banded themselves together for the promotion of general as well as special industrial interests, but the movement has spread and now includes unions of officials, commercial unions, and associations of workmen of every description. It is chiefly for the promotion of industrial objects that the cartel, or union of masters, has been formed; then we have associated enterprises of various groups and classes, and, finally, the cooperative societies of the working classes.

Cooperative societies.—German cooperative societies and associations can look back upon half a century of successful activity. At present, the self-aided trades and industrial cooperative societies number altogether upward of 17,000 local societies, of which about 9,000 are agricultural, and include more than a million peasants. Fourteen thousand cooperative societies are comprised in 29 unions. The most prominent of these are the general union of self-aided trades and industrial associations, which has its headquarters at Charlottenburg and consists of 32 affiliated unions and 1,371 associations; the general union of agricultural associations at Offenbach, with 28 affiliated unions and 6,505 associations; and the general-agency union at Neuweid, with 3,228 associations.

In 1898, the 1,371 associations connected with the Charlottenburg union had 941,000 members. Their share capital amounted to $31,713,500, while the reserve fund was equal to one-third of the capital. The associations lent their members $481,236 worth of raw materials, necessaries of life, dwellings, etc., during 1898.

Sphere of activity.—Besides these three gigantic societies, there are smaller ones of some importance, as will be shown by a review of the collective activity of the entire number of 17,000 German associations. On March 31, 1899, they were classified in the following manner: Ten thousand eight hundred credit cooperative societies, peoples' and industrial banks, societies for advancing loans, savings and

credit bank associations were carrying on business with the aid of 40 central banks. Most of the others were employed chiefly in buying and selling; some also in producing goods. They were divided into 376 industrial associations (half of these being producers) and 3,900 agricultural associations, the majority of which were occupied in production on their own account, such as dairy work, vine and fruit culture, etc. In round numbers, 1,200 were for the purchase of raw materials, about 100 were occupied in the sale of goods, and nearly 500 were work associations. Of other associations, the most important are the 1,375 cooperative supply associations, and the importance of the steadily increasing building and dwelling societies (about 250) must not be underrated.

Industrial unions.—In 1898, there were 59 of these organizations in Germany, with almost 500,000 members. Each organization was in turn connected with 16,000 other local organizations. The budget of this immense union amounted to $2,500,000, and $1,000,000 fell to expenditures. This latter sum was paid out for relief of the needy, funds for strikes, and for the press. So far, working women have taken but little interest in the industrial movement. The largest list of members belonging to industrial unions is among the metal workers (75,000), the wood workers (60,000), the textile workers (27,000), and the miners (28,000). The most perfect of these work unions is that of the book printers, consisting of 24,000 members. Of the others, the carpenters number about 20,000, while the persons employed in the tobacco trade and the workers in manufactories, shoemakers, harbor and stone laborers furnish severally from 10,000 to 15,000 members.

Trades unions.—The second group, the so-called Hirch-Duncker trade unions, includes at the present day 86,500 members in 1,700 local unions. Of these, 34,000 belong to unions of engineers and metal workers and 16,500 to those of handicraftsmen and workers in manufactories. The entire property of the trades unions amounted, at the end of 1898, to $700,000. Since their foundation and up to 1895, they had distributed nearly $5,000,000 for sickness and burial money, in relief for the disabled and needy, for legal protection, and for educational purposes.

Journeymen's societies.—Toward the end of the nineties, there were 140 journeymen's societies, with half a million members. Their funds amounted to nearly $20,000,000, and they had given away $8,000,000 for charitable purposes.

Shopkeepers.—Social and educational interests play an important part in the associations of officials and mercantile people. The largest of the latter is the German mercantile association, with 127,000 members, of which 25,000 are employers. The chief object of this, together with three other large associations with a total membership of 67,000, is, besides the social side, to procure information as to situations, to distribute relief, and to provide funds for technical and other instruction. In addition, there are four large associations of shopkeepers' assistants.

Union of the employers of labor.—For the protection of special interests as opposed to the workmen, there are unions for the employers of labor. In the foremost rank is the Hamburg league, with 17 large associations, which comprises the most varied industries and extends to a number of neighboring places. The next in importance is the Berlin league of the employers of labor. In addition to these general leagues, there are others of special branches of industry, which are sometimes organized locally and often cover large portions of the country. Three are for mining and smelting concerns, 11 for metal manufacturers, 4 for brewers, 4 for the textile trades, 9 local and 1 central league for the building trade, 2 for the hat trade, and 1 for the manufacture of tapestry, besides 3 leagues of masters in the manufacture of wood.

Other leagues.—Kindred leagues, representing especially the industrial side of professional interests, also exist in the liberal and learned professions; as, for example, the various German authors' societies, associations of journalists, musical

societies, the German stage union, the artists' society, banks for the relief of teachers, and societies for female teachers. These not only watch over the interests of the different classes, but also promote charitable objects and offer their collective services for the organization of exhibitions and performances.

ERNEST L. HARRIS,
Consular Agent.

EIBENSTOCK, *May 18, 1902.*

TRUST MOVEMENTS IN AUSTRIA-HUNGARY.

Oil.—Negotiations are under way between oil refiners and raw-oil producers of this Empire to regulate production in the interest of greater profits. It is proposed to limit output and divide the markets among the parties concerned. Both refiners and producers already have separate agreements. The present movement, therefore, has in view a combination on a broader scale—substantially a fusion of separate combinations.

Glass.—The agreement between Bohemian and Bavarian raw-glass producers, formed for the purpose of regulating selling prices, which was dissolved some time ago, is to be at once renewed. In conjunction therewith, a former combination of looking-glass manufacturers of Bohemia and Bavaria is to be revivified. In both cases, the object is to reduce competition to a minimum and restore prices to a profitable basis.

Cement.—A union of Austrian Portland-cement manufacturers has been effected. It is complained, however, that the recalcitrance of a few outside firms makes it very difficult to accomplish the purpose of the combination—to check a further fall in prices by judiciously dividing the markets among the parties to the agreement. But it is hoped that the outsiders may be gradually forced into line, as they come to realize that their interests are thereby subserved.

Iron.—After a severe struggle of two years, the iron industries of Austria and Hungary have formed a combination with the object of increasing profits by reducing competition and raising prices; though it is openly charged that the large concerns have all along been realizing dividends ranging from 7 to 25 per cent.

Previous combinations of iron industries have been formed in this Empire, but they embraced only certain establishments or related to only a certain kind of product. But all these have been dissolved through disagreements or otherwise, and are succeeded by the present giant combination, which absorbs substantially every iron-working concern in the Empire and covers every variety of iron product.

The agreement is to last ten years. During that period, a new

iron-working establishment can not be started in the Empire—unless, indeed, it is able to use its own raw material, which will be practically impossible. All the iron smelters in Austria are owned by the members of the combination, and it is not practicable to start new ones. In Hungary, under peculiarly favorable conditions, some strata of iron ore might be developed outside of the trust, but enormous capital would be required. Thus, from appearances, the trust is in a position to absolutely shut out competition.

The liberal policy of the Hungarian Government, in financially encouraging new industries, would seem to be an obstacle to trade combinations, but it is argued that this policy really aids the iron combination, since its protective spirit leads to legislation tending to exclude foreign competition.

In production and in markets, the iron industries of this Empire have gained much during the past decade. Certain individual works have largely increased their working capital, and others have added materially to their producing capacity.

The markets will be carefully divided among the members of the combination. In one respect, the Hungarian members have secured a decided advantage over their Austrian brethren. Under the agreement, the former may deliver to Austria 280,000 metric centners (28,000 tons of 2,204.6 pounds) of product, while the latter may deliver only 110,000 metric centners (11,000 tons) to Hungary. Under former agreements, the exchange was equal.

In to-day's newspapers, it is announced that members of the combination have notified their customers that they can not make future contracts at the old prices. The increases, it is stated, range from 1 to 4 crowns (20 to 80 cents) per 100 kilograms (220.46 pounds), depending upon the kind and quality of the iron product.

FRANK W. MAHIN,

REICHENBERG, *May 10, 1902.* *Consul.*

IMPROVEMENT OF ROADS NEAR ATHENS.

The highways now connecting Athens with its seaport, Piræus, and with its bathing places on Phalerum Bay are narrow, poorly graded, poorly turnpiked, and poorly kept, making transportation between these places by carriage, wagon, or wheel quite disagreeable.

A new boulevard is now being constructed, starting at Hadrian's Arch on the Boulevard Amelia, Athens, and extending in a direct line and gradually sloping grade to the shore of Phalerum Bay, at a point nearly midway between Old Phalerum—the bathing place of the ancient Athenians—on the south shore of the bay, and New

Phalerum, the bathing place of most of the modern Athenians, on the northwest shore.

The boulevard will be about 5½ kilometers (3.417 miles) in length and 30 meters (98.42 feet) in width. It is intended to divide it into a carriage drive, a bicycle path, and a promenade for pedestrians, by rows of shade trees. Mrs. Syngros, a wealthy Athenian, has furnished the money to construct and finish the boulevard, and the cost is estimated at 500,000 drachmas ($58,823.50). The grading, culverts, and bridges are well under way, and it is hoped to have the whole finished by next December.

The new boulevard will intersect a seashore driveway which now connects Old Phalerum with New Phalerum and Piræus, and it is expected that in the near future this driveway will be widened into a broad avenue, which will pass the zoological gardens now in course of construction, near Old Phalerum, and connect with an attractive driveway which passes along the face of the bluffs and promontories on the west shore of the bay, and along the ancient walls of Piræus, down to its harbor. When finished, the whole will form one of the most attractive drives in southern Europe, and will make the means of communication between Athens and the sea much more easy and agreeable.

DANIEL E. MCGINLEY,

ATHENS, *May 12, 1902.* *Consul.*

RUSSIAN REGULATIONS FOR HEMP EXPORT.

The Bureau of Foreign Commerce has received from Mr. Routkowsky, financial agent of Russia, copy of the new regulations of the hemp trade—sanctioned by the Emperor on April 8 (21), 1902—which reads:

(1) The hemp which is put up for sale in the interior of the Empire and abroad shall be subject to the undermentioned dispositions (2 to 5):

(2) The hemp must neither contain any admixture of offal or other foreign matter nor be moistened in order to increase its weight artificially.

(3) The bundles of hemp must not weigh more than 40 Russian pounds (36 pounds) each, and shall be composed of filaments of homogeneous quality and preparation.

(4) The bundles of hemp shall be composed of filaments without a head, put together by their length and bound round at the first third of the bundle by only one band, in such a way that the ends of the filaments can freely hang down on both sides of the band, in order to make possible the examination of the filaments without the untying of the bundle.

(5) The bands used for tying up the bundles must be of hemp.

The following penalties are fixed for nonobservance of the above-mentioned regulations:

Any tradesman who sells, prepares, or keeps for sale hemp which contains an admixture of offal or other foreign matters, or is moistened with the purpose of

artificially increasing its weight shall be punished by arrest for a term not exceeding one month or by a fine not exceeding 100 rubles ($51).

Any tradesman who does not observe the other regulations concerning the hemp which is put up for sale in the interior of the Empire and abroad shall be liable to a fine not exceeding 100 rubles.

This law is to take effect on the 1st day (old style) of August, 1902.

THE FORESTS OF RUSSIA: CORRECTION.

The officers in charge of the forestry department of the Ministry of Agriculture complain that my report of December 27, 1901,* indicated the gradual deforestation of Russia. The department states that the timber on Crown lands is under the control of a special committee, and permission to cut it is granted by the Minister of Domains and Agriculture; and that during the year 1901 only 6,174,181 cubic sagenes (2,117,744,083 cubic feet) were sold out of 13,845,519 cubic sagenes (4,749,013,017 cubic feet) of timber authorized, and of the amount to be sold 5,463,785 cubic sagenes (1,874,078,255 cubic feet) were delivered, which represents but 40 per cent of the quantity authorized; and that the proportion of deliveries during previous years was still smaller. It is claimed that the Crown has such an enormous extent of timber that were it to sell double the quantity authorized it would not materially affect the reserve. The largely increased revenues received from this source in the last few years is due to increased care and improved methods of management, and not to the large sales.

The Minister of Agriculture recently published a valuable report (in French) on "Forestry in Russia" which bears out these statements, a copy of which is herewith transmitted.†

W. R. HOLLOWAY,
Consul-General.

ST. PETERSBURG, *May 6, 1902.*

MILK POWDER IN SWEDEN.

Although I have already made several short reports on this subject,‡ in view of the numerous inquiries for additional information by interested persons in the United States, I feel justified in again referring to it.

In an interview to-day, the inventor, Dr. M. Ekenberg, said that, as American letters patent had not yet been issued, he could not now explain the method of manufacture. He also said that he had not

*ADVANCE SHEETS No. 1255 (February 3, 1902); CONSULAR REPORTS No. 258 (March, 1902).

†Filed for reference in the Bureau of Foreign Commerce.

‡See ADVANCE SHEETS No. 1217 (December 18, 1901), No. 1272 (February 21, 1902), and No. 1323 (April 23, 1902).

sold his rights for the United States, and that Americans desiring to negotiate for same should address him direct. The doctor hopes that he will soon be ready to show a large model of his invention in operation in a Swedish creamery, and under certain conditions is willing to exhibit a similar apparatus in America.

There will be two patents issued—one for the method itself and one for the apparatus. Dr. Ekenberg explained that chiefly skimmed milk would be utilized, as powder made from pure milk does not keep so well. The maximum cost of production (for coal, oil, and labor), he said, is 1 öre per liter (about 1 cent per gallon) of skimmed milk exsiccated.

As to its chemical composition and the profit considered possible to be derived from the manufacture of milk powder in Sweden, I quote the following article which yesterday appeared in a Gothenburg newspaper:

By improvement of the milk separators, the skimmed milk is now nearly entirely free from fat, and is therefore less useful for many purposes. During the year 1900, the total quantity of unskimmed milk received and weighed in by the creameries in this country amounted to 769,607,973 kilograms (1,696,677,737 pounds), from which was produced 26,114,018 kilograms (57,570,963 pounds) of butter and 7,434,455 kilograms (16,390,000 pounds) of cheese. Besides this, the creameries sold 72,672,603 kilograms (160,214,000 pounds) of unskimmed milk. The quantity of skimmed milk corresponding to the butter produced is about 600,000,000 kilograms (1,322,760,000 pounds). If this were transformed into milk powder according to Dr. Ekenberg's method, 60,000,000 kilograms (132,276,000 pounds) of milk powder would be produced. The composition of the milk powder is, according to a statement which Commercial Chemist John Landin made in a lecture before the Swedish Technological Students' Club, on the average, as follows:

	Per cent.
Albuminous matter	36
Sugar of milk	49
Fat	1
Milk salts	7.5
Moisture	6.5

If we, from a nutritive point of view, pay attention only to the albuminous matter, we find that 1 kilogram (2.2046 pounds) of milk powder equals 1.8 kilograms (2.48 pounds) of boneless meat from neat cattle, which usually contains, on the average, 20 per cent of albuminous matter and 70 to 75 per cent of water. The white of an egg contains about 12.6 per cent of albumen and 85.7 per cent of water; therefore the nutrimental value of the milk powder is nearly three times as great as the white of an egg. Owing to the large quantity of sugar in the milk powder, and the milk salts, which are physiologically important in the formation of the blood, the real value is comparatively still higher. At a price of 2 to 3 öre per liter (2 to 3 cents per gallon) for the skimmed milk, it has been stated that the milk powder can with good profit be sold for 70 öre per kilogram (8.58 cents per pound), and this price is likely to be paid, because the price of skimmed milk in France, England, Belgium, and parts of Germany is above 7 öre per kilogram (1.9 cents per 2.2046 pounds), and 1 kilogram of milk powder dissolved in water will yield 10 kilograms of milk of the same composition as the skimmed milk.

The whole yearly output of skimmed milk from our creameries, corresponding to 60,000,000 kilograms of milk powder, would, utilized in this form, represent a value of 40,000,000 kronor ($10,720,000), or more than the value of our whole yearly export of butter, which, in 1900 was 36,960,230 kronor ($9,905,341).

Among general uses for the milk powder have been mentioned: For bread (instead of using milk); for making puddings, sauces, etc.; for mixing in chocolate, preserves, cakes, biscuits, confectionery, etc. It would also be an important article of provision for the army and navy, for prisons, poorhouses, hospitals, and other public institutions.

I am not in a position myself to make an estimate of the value of the invention, nor can I vouch for the correctness of the above calculations as to the commercial value of the milk powder.

ROBERT S. S. BERGH,
Consul.

GOTHENBURG, *May 29, 1902.*

ANTWERP IVORY MARKET.

The second quarterly ivory sale closed April 30, the ivory offered and sold being as follows:

Description.	Quantity.	Description.	Quantity.
Kongo:	*Pounds.*		*Pounds.*
Hard	64,378.25	Mozambique	1,338.45
Soft	11,986.48	Senegal and Gold Coast	1,204.82
Angola	13,433.9	Benguela	228.21
Ambriz	4,852.16	Total	114,185.97
Gaboon	9,266.39		
Kamerun	7,497.31		

The stock on hand is 265,224 pounds. In former years the quantities sold and stock on hand has been:

Year.	Sold.	On hand.
	Pounds.	*Pounds.*
190-	144,605.96	226,160
1900	194,271.44	216,291
1899	161,391.89	192,236
1898	119,935.7	119,248
1897	151,321.6	172,704
1896	136,832.97	219,992

The sale was animated, and the advance in price for hard ivory was from 20 to 25 cents, and for soft ivory from 60 cents to $1 per kilogram (2.2046 pounds). The market for bangles and scrivailles was very firm.

The next quarterly auction sale will take place July 29.

GEO. F. LINCOLN,
Consul-General.

ANTWERP, *May 5, 1902.*

AMERICAN LUMBER IN ROTTERDAM.

Having lately had some inquiries as to the current prices of American lumber at Rotterdam, I have investigated the matter and find that the following quotations rule at present for logs per 1,000 feet Scribner rule and for lumber per 1,000 feet board measure:

Prime walnut logs, 16 inches and upward:		
To average 21 to 22 inches	$90.00 to	$100.00
To average 23 to 24 inches	110.00 to	120.00
Prime white-oak logs, 24 inches and upward	42.00 to	44.00
Whitewood logs, 28 inches and upward	42.00 to	44.00
Prime hickory logs, with small, brown heart	52.00 to	54.00
White-ash logs, 14 inches and upward	44.00 to	45.00
Gum boards and planks, 1 to 3 inches thick	42.00 to	46.00
White-oak boards and planks, 1 to 3 inches	46.00 to	51.00
Oak scantlings, 3 by 3, 4 by 4 inches, 8 to 16 feet	40.00 to	42.00
Cottonwood boards and planks, 1 to 3 inches	28.00 to	31.00
Walnut boards and planks, 1 to 4 inches	105.00 to	125.00
White-oak stairsteps, 1¾ or 2¼ inches by 11, 12, or 13 inches		52.00
White-oak parquetry strips:		
1 by 4, 4½, 5 to 6 by 20 or 24 inches		38.00
1 or 1¼ by 4 to 6 inches, 10 to 16 feet long	43.00 to	44.00
White-ash boards and planks, 1 to 3 inches	44.00 to	48.00
Pitch pine, 1 to 3 inches by 11 inches and upward..per standard	63.25 to	65.68

Messrs. J. C. & Th. H. Leyenaar, one of the leading firms that handle American lumber at this port, has, at my request, furnished me with their views as to the prospects for the American lumber trade here this season:

The Netherlands buy, as a rule—with the exception of pitch pine—very little lumber from America, but a good many logs. The sale of the latter is fair and the business prospect is not unfavorable.

Germany (which country is supplied from this port to a great extent) buys more lumber than logs. Conditions there have not as yet improved much since last year. Though money has become cheaper, the trade continues dull, and prospects are not very bright for any great revival of the lumber trade.

S. LISTOE,

ROTTERDAM, *April 11, 1902.* *Consul.*

NOTES.

International Congress of Hydrology, Climatology, and Geology at Grenoble.—The Department has received from the French embassy, Washington, under date of June 13, 1902, notice of the Sixth International Congress of Hydrology, Climatology, and Geology to be held in Grenoble, commencing September 28, 1902. An invitation is extended to universities and institutions interested in these subjects to be present. Programmes are inclosed for distribution. Papers will be read on the following subjects:

Hydrology.—(1) Action of mineral waters on the tissues; (2) practical methods of microbiological analysis applicable to mineral waters; (3) importance of complete chemical analysis of mineral waters with reference to mineral and organic matters to enlighten thermal medicine; (4) legal measures for protecting the exploitation of thermal and mineral waters; (5) hydromineral treatment of pulmonary consumption, (6) of skin diseases, and (7) of stomach complaints; (8) preventive action with children with constitutional tendencies.

Climatology.—(9) Variation of respiratory exchanges as influenced by altitude, heat, and cold; (10) meteorological conditions necessary to the installation of a sanatorium; (11) open or closed sanatoriums.

Geology.—(12) Whether mineral waters intercepted by artificial means suffer variations of temperature according to the seasons; what variations; (13) relations of the principal thermal springs of Dauphiny with the geological nature of the soil; origin; (14) statistics regarding the mineral springs of Savoy and Dauphiny; (15) geological conditions and origin of the mineral waters of Oriol and La Motte (Isère).

The membership fee is 20 francs ($3.86). Communications should be addressed to the general secretary, Dr. Berlioz, École de Médecine, Grenoble (Isère), France. It is believed that the railway companies will issue tickets at reduced rates for the congress

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The Osaka Exhibition.—Consul S. S. Lyon sends from Hiogo (Kobé), May 16, 1902, a pamphlet giving the classification of articles in the Osaka exposition, to be held from March to July, 1903.* The pamphlet is filed in the Bureau of Foreign Commerce, where it may be examined by those interested. Mr. Lyon also transmits the following descriptive matter (printed):

Spacious buildings, eighteen in number, are in course of erection. They are being constructed entirely of wood and covered with galvanized zinc sheets. At the northern entrance there will be a tower 90 feet high from which visitors may

* For regulations, see ADVANCE SHEETS No. 1283 (March 7, 1902), CONSULAR REPORTS No 260 (May, 1902).

view the surrounding country. Fortunately, the tower will be provided with a lift. The laying out of the grounds and construction and fitting up of the buildings and appurtenances have been undertaken by Mr. Obayashi Yoshiboro, the well-known contractor of Osaka, at the price of 1,100,000 yen ($547,800), the buildings alone costing 700,000 yen ($348,600).

As Osaka possesses no carriages or cabs, but only jinrikisha, it was at first proposed to build a tramway to run from the Umeda Station to the exhibition, for which purpose, most of the streets being very narrow, the municipality intended to purchase and remove a great number of houses; but the expenditure for this being found too great, the idea has been abandoned. Instead, visitors who arrive at Umeda Station will be carried by train to Kawaguchi Station, which lies on the western side of the city, from which steam launches provided by the municipality will take them up the river to Minato-machi Station, and thence they will proceed by rail to the exhibition grounds.

Improvement of the Peiho River, China.—The Department has received from Mr. W. E. Bainbridge, second secretary of legation at Pekin, a clipping from the China Times, of Tientsin, showing what is being done toward the improvement of the Peiho. The article reads, in part:

Though the works are yet at their beginning, and no material improvement can be expected until considerable progress has been made, several ships have found their way to Tientsin Bund, and the commission states that the deterioration of the river can be checked at comparatively small expense. Excavations are being made, locks and a dock constructed on the Lutai Canal, part of the Taku North Fort taken away, a second dike built to protect the railway, and a large dredger purchased in London. The board is composed of a Russian general, a British treasurer, and German, Belgian, Italian, Austro-Hungarian, and British members.

Trade Combines in Australia.—Consul-General J. P. Bray writes from Melbourne, April 26, 1902.

The minister of customs has introduced into the House of Representatives the following amendment to the Australian customs bill. In all probability, it will be concurred in by the Senate and become law.

Whenever the governor-general has reason to believe that with regard to any goods there exists any trust, combination, association, or agreement of any kind among importers or manufacturers of or dealers in such goods to unduly enhance their price or in any way to unduly promote the advantage of the importers, manufacturers, or dealers at the expense of the consumers the governor-general may by commission empower any justice of the high court or any judge of the supreme court of a State to inquire in a summary way and report to the governor-general whether such trust, combination, association, or agreement exists.

The justice or judge may compel the attendance of witnesses and examine them upon oath and require the production of books and papers, and shall have such other powers as are conferred upon him by the governor-general for the purpose of such inquiry.

If the justice or judge reports that such trust, combination, association, or agreement exists the report shall be laid before both Houses of the Parliament and the governor-general may, upon an address from both Houses of the Parliament, by proclamation direct that the goods shall be admitted free of duty or at such reduced rate of duty as will give to the public the benefit of reasonable competition in the goods.

Mining Laws of Madagascar.—Under date of April 15, 1902, Consul W. H. Hunt, of Tamatave, says:

The President of the French Republic signed, last February, a new code of mining laws applicable to Madagascar, and it was published in the colony on the 29th of March. The changes introduced mainly refer to increased facilities in procuring prospecting and mining licenses, as also a wider choice in the selection of lands for extracting gold, the precious metals, and precious stones. There are advantageous clauses relating to transactions by power of attorney and the transfer and mortgage of mining property. I inclose copy in duplicate of the French text from the Journal Officiel, with translation thereof.*

Korean Ginseng Crop for 1901.—Minister H. N. Allen, of Seoul, under date of May 28, 1902, sends a report on the Korean ginseng crop for 1901, as follows:

The crop of Korean ginseng for 1901 has been sold to a Japanese firm for 1,255,500 yen ($625,239). It amounted, with beard, to 52,000 catties (68,120 pounds). After purchasing this ginseng, the purchasers deliberately burned 10,000 catties (13,100 pounds), as the supply was in excess of the demand. It is said that a considerable portion of last year's supply still remains unsold in China, and that this year's crop in Korea was enough for nearly three years' consumption. The market is limited, as the Chinese are about the only consumers. Although ginseng is regularly raised in various parts of Korea, only that raised upon the imperial farms at Songdo is said to have the real virtues claimed for the root as a medicine. These Songdo plantations are the only ones that are guarded with care. The soil is a disintegrated granite. For the past few years the annual crop has been growing larger; 15,000 catties (19,650 pounds) has been regarded as the normal quantity, but by gathering it at five years instead of seven, and by increasing the number of beds, the supply has finally exceeded the demand. This must be of interest to the number of Americans who have of late gone into ginseng culture.

* Filed for reference in the Bureau of Foreign Commerce.

Seoul Electric Company.—The Department has received from Minister Allen, of Seoul, under date of May 1, 1902, extracts from a report published in a Japanese newspaper, in which very favorable mention is made of the plant of the Seoul Electric Company. The plant in question is the largest single electrical plant in Asia. It was built for the Korean company by an American firm—Collbran & Bostwick—who hold the property under mortgage. The company operates an overhead-trolley road of some 12 miles, and with the same power furnishes incandescent and arc lights for the city. The generating machinery consists of two 120-kilowatt rotary converters from the Westinghouse Manufacturing Company. The boilers are of the Babcock & Wilcox type. The special point of these machines is that they produce direct current at 550 volts for use of the cars and at the same time alternating current at 385 volts for the electric lighting. There are something over 1,400 incandescent lights besides the arc lights in use. Over 2,000 volts of alternating current are freely produced, which is most advantageous for a city like Seoul, where lights are scattered over long distances. The consulting engineer is a Japanese, a graduate of the Massachusetts Institute of Technology. The road is being well patronized by the natives.

Electric Roads in Switzerland.—Consul H. H. Morgan writes from Aarau, June 13, 1902:

Referring to my report regarding the proposed construction of electric lines in Switzerland,* I have to state that these lines will be built by the authorities of the townships through which they will pass. A committee will make the necessary contracts with the actual builders of the road and the furnishers of the material required in the construction. As soon as the advertisements for bids are made, I will report all possible details. The principal promoter of these enterprises is Mr. Konradin Zschokke, an eminent engineer of Aarau, and any communication regarding the matter addressed to him will, I am sure, receive a prompt acknowledgment. I would advise that the correspondence be in German.

Granting of Patents in Germany.—Consul J. F. Winter reports from Annaberg, May 14, 1902:

The protection of intellectual property and inventions afforded by the patent laws of Germany has been of great assistance to the expansion of industry. From 1877 to the end of 1898, 101,000 patents and 118,000 provisional protections were granted. Of these,

*Advance Sheets No. 1338 (May 8, 1902).

about 4,000 patents and 2,500 protections were for metal works. An almost equal number of patents and 4,000 protections were for the manufacture of instruments; 3,900 patents and 900 protections were granted for the construction of steam boilers and steam engines; the same number of patents and more than 3,000 protections for electric apparatus; and almost as many for railway construction. That agriculture and forestry and domestic concerns also benefit by the spirit of invention is shown by the fact that 3,700 patents as well as 17,100 protections have been granted for these departments. Besides the protection afforded under these two heads, the trade-marks law of October 1, 1894, has enabled about 35,000 commodities to be registered as the goods of recognized firms and of special quality.

New German Steamer.—Consul J. E. Kehl, of Stettin, sends the following:

The new North German Lloyd single-screw steamer *Schleswig*, launched at the Vulcan Yards in Stettin on May 10, is intended for the South American trade. Her mechanical and engineering details are: Length at water line, 450 feet; beam, 52 feet; molded depth to upper deck, 33 feet 6 inches; power, 4,000 horsepower; speed, 13½ knots; bunker capacity, 1,630 tons; displacement (with full cargo), 12,600 tons; crew, 90. A double bottom covers the ship's length, and the hull is divided into eleven water-tight compartments. Two steel masts support fourteen yardarms for discharging and taking on cargo, in addition to two steam cranes. The ship is provided with a cold-storage room. The passenger accommodations consist of 64 first-cabin rooms, with 157 berths; 6 second-cabin rooms, with 20 berths; and space for 952 steerage, in 6 compartments.

German Charges on Trunks of Traveling Salesmen.—Consul J. J. Langer reports from Solingen, May 17, 1902:

The quantity of free baggage allowed to passengers in northern Germany is 25 kilograms (55 pounds), while in southern Germany no free baggage is allowed. No concessions have thus far been made to commercial travelers, and they are obliged to pay the same rates as the general public. The Association of Commercial Travelers in Germany has recently requested the German Commercial Convention to assist them to obtain a 50 per cent reduction of the rates on sample trunks, basing their request on the fact that such concessions are granted in most of the European countries, as, for instance, in France and Austria-Hungary.

New Swedish Burner.—Under date of June 5, 1902, Consul Bergh, of Gothenburg, quotes from a Gothenburg newspaper the following article:

A promising invention has been made by Anders Lindgren, of Karlstad, who has constructed a kerosene burner which, while resembling the Auer burner, needs no pressure of carbonic acid to press up the oil and bring about its gasification. The oil is drawn up into the burner by a common wick, passes to a little ring-shaped wick, and burns with a steady and pleasant light, which also has the advantage that it is generated noiselessly. The consumption of kerosene by a lamp of 125 candlepower amounts to only 0.5 to 0.6 öre (0.134 to 0.16 cent) per hour. Application for patent has been made in Sweden and will be made in other European countries and in America.

Electric Plant in Amsterdam.—Under date of June 2, 1902, Consul F. D. Hill writes from Amsterdam:

The city council has voted a loan of 6,500,000 florins ($2,613,000) and a second one of 2,900,000 florins ($1,165,800) for building a plant to furnish electricity for lighting and motive power and for changing the street railway to electric traction. The contract for the building of the plant has as yet not been made. The steam engines, dynamos, and the installation will be furnished by German and Dutch manufacturers. Particulars of the cables will be published on July 1; bids to be delivered September 1, 1902.

Danish Markets for American Hats.—Consul John E. Kehl, of Stettin, informs the Department, May 29, 1902, that he has recently received a letter from a Copenhagen firm, requesting addresses of American manufacturers of hats, and stating that Denmark would very likely prove an excellent market for these goods. The consul also refers to his recent report "German market for American hats," published in ADVANCE SHEETS No. 1279 (March 3, 1902), and says that so far only one American house has shown any disposition to avail itself of the opportunity offered to capture this trade.

American Pictures in Munich.—Consul J. H. Worman, of Munich, reports in regard to the international art exhibition recently held in that city. The consul succeeded in obtaining a collection of representative pictures from American artists in Paris, which, with contributions from Americans temporarily in Munich, made, he says, a most creditable exhibit. One picture was bought for the New Pinakothek by the Bavarian Government; two first-class and five second-class medals were awarded American artists; and several

royal decorations were bestowed. As there were altogether only twenty-three pictures in the American section, the percentage of recognitions far exceeded that of any other foreign exhibit, and made a record for American art.

American Shoes in Bohemia.—Consul F. W. Mahin writes from Reichenberg, May 13, 1902:

The first stock of American shoes ever placed on sale in this locality was recently received at a store in this city, and the columns of the local papers were freely used in announcing the important fact. A few days thereafter, on taking to the store an American friend who needed a pair of shoes, I was told that the entire stock had not only been sold, but that (translating into equivalent English) it "went off like hot cakes." Another stock has been ordered, and is daily expected.

No overt opposition to the invasion of the American shoe has appeared in this locality, and the purchasing public has eagerly welcomed it.

German Duty on Steel Used for Cutlery.—Consul J. J. Langer reports from Solingen, May 31, 1902:

The manufacturers of cutlery in the Solingen consular district have petitioned the tariff commission not to raise the duty on steel, claiming that steel used for the manufacture of better grades of cutlery must be imported from Sweden and Austria-Hungary, Germany not being able to supply the quality desired. They say that in the event of a higher duty, the manufacturers could not buy the foreign product, and would be unable to compete in the manufacture of the better grades of goods.

German Duty on Mineral Oil for Motors.—Consul J. J. Langer sends the following from Solingen, June 6, 1902:

The chambers of commerce at Nuremberg and at Solingen have petitioned the federal council to place mineral oil used for motor power on the free list of importations. In the Solingen cutlery industry, home work is still a prominent factor. Among these people and the middle class of manufacturers, the use of motors has greatly increased in the last few years, and the entry of mineral oil free of duty would be of the greatest benefit for them, especially in view of the high price of coal at this time.

Conditions in German Iron Trade.—Consul-General O. J. D. Hughes reports from Coburg, May 30, 1902:

According to the best information obtainable, the improvement in the iron trade in Germany continues, and prices generally have an upward tendency. For girders, there is a good home demand, and makers say they must advance quotations $1.25 to $2.50 per ton. Rail makers have good prospects from the orders to be given out by the Russian State railways. Some improvement in the export trade is reported, especially in standard-size girders. Plate makers are again bidding for foreign business.

Opening for Hotel in the Azores.—Under date of June 4, 1902, Consul G. H. Pickerell writes from St. Michael's:

I have received a letter from the local chamber of commerce, requesting that it be put in touch with parties who are in position to build and operate hotels. The chamber feels sure that the beauties of the island and the value of the medicinal springs have only to be put before the public to be appreciated. At the present time, the hotel facilities are exceedingly limited and the great transportation lines that pass on their way to and from the United States give this as their reason for refusing to stop.

Details of the project, transmitted by the consul, have been filed in the Bureau of Foreign Commerce, where they may be consulted by those interested.

La Rochelle-New Orleans Steam Service.—Consul G. H. Jackson reports from La Rochelle, June 12, 1902:

The Olazarri Navigation Company (Spanish), which sails regularly from Antwerp and Havre, will hereafter make La Rochelle the last port of call in Europe. The sailings will be direct from La Pallice Harbor to Cuba, Mexico, and New Orleans on the 6th of each month. The first sailing will take place on July 6, when the steamer *Otanes*, 4,800 tons, will leave this port for Habana, Veracruz, Tampico, and New Orleans.

The agents at La Rochelle are Messrs. Canaud & Nordlindh.

New Brazil-Mediterranean Steamship Line.—Consular Clerk G. H. Murphy sends from Frankfort, June 7, 1902, the following translation from the Berlin South American Outlook:

Two capitalists in Sao Paulo, Brazil, are making arrangements for the establishment of a steamship line to supply regular connection between that city and the Mediterranean Sea (especially Italian ports). The principal object in view is the transportation of immigrants.

Canada-Jamaica Steamship Service.—Consul W. B. Sorsby writes from Kingston, June 5, 1902, that, according to the local press, a contract has been made between the Halifax and West India Steamship Company and the Canadian Government for a monthly steamship service between Jamaica and Canada, which contract is to continue in force until December 31, 1906. The steamer to be used will be of 1,037 tons register. The company is to receive a subsidy of $13,800 per annum, or at the rate of $1,150 for each monthly trip. In this connection, adds Mr. Sorsby, it may be pertinent to report that at present the only regular Canadian steamship connection from Jamaica is a monthly service to Halifax.

Wood for Port Works in Argentina.—Minister W. P. Lord writes from Buenos Ayres, May 3, 1902, that in a recent report by Mr. E. L. Corthell (consulting engineer in the Ministry of Public Works of the Argentine Government) the writer says that it is impracticable to obtain quebracho colorado, curupay, etc., in lengths suitable for deep foundations for harbor works; but that Oregon pine and pitch pine can be obtained in any desired length and size, and preserved by the creosote or brunettizing process for twenty-five or fifty years above water and forever under water. The Argentine Government, adds Mr. Lord, intends to build a large port at Rosario,* and much heavy timber will be used in its construction. The preference given in the report to Oregon pine may lead to its selection.

Trade between Nicaragua, Guatemala, and Salvador.—Under date of May 30, 1902, Minister W. L. Merry transmits from San José translation of a decree of the Nicaraguan Government, establishing free trade with Guatemala and Salvador for natural and manufactured products. The articles which constitute Government monopolies, including alcohol and its derivatives, tobacco, firearms, munitions of war, and explosives, are excepted. By the treaty of 1894, Honduras was granted equal commercial advantages with the other Central American republics, and is therefore not mentioned in the decree. The Government of Costa Rica does not accept reciprocity, but appears inclined to a high protective policy.

Code of Signals for Brazilian Vessels.—Consul-General Eugene Seeger reports from Rio de Janeiro, May 16, 1902, that the Brazilian Government has published in the Diario Official an order adopting for its merchant marine the "international code of signals" proposed by the Government of Great Britain.

*Advance Sheets Nos. 990 and 1020; Consular Reports Nos. 248 and 249.

New Electric Road in Canada.—Commercial Agent J. E. Hamilton writes from Cornwall, June 14, 1902:

The project for an electric line from Cornwall to Toronto is being rapidly pushed by American and Canadian promoters, who have a capital of $8,000,000.

Demand for Scales in the Transvaal.—Consular Agent W. D. Gordon, of Johannesburg, reports that he has received a request for information in regard to automatic scales, or rather automatic registering devices which can be attached to scales used in the weighing of ore. Manufacturers are asked to write him.

International Maritime Congress at Copenhagen.—Under date of May 21, 1902, the Department has received notice from the International Maritime Association of Paris of the congress of the association, to be held in Copenhagen July 14, 1902. The object of the congress is to elucidate, from an international point of view, certain questions which interest the marine of all countries. The hope is expressed that the United States will be officially represented.

Industrial Union at Augsburg.—Consul J. H. Worman, of Munich, under date of April 18, 1902, reports the formation of a protective union for trade and industry at Augsburg. It was joined at once by forty of the most prominent business and manufacturing concerns, and promises to be further augmented.

Russian Customs Regulations.—Consul-General W. R. Holloway, of St. Petersburg, under date of June 3, 1902, transmits a printed statement (in French) of the commercial rules concerning the receipt of merchandise at the custom-houses of the Empire. The pamphlet is filed in the Bureau of Foreign Commerce, where it may be consulted by those interested.

Russian Petroleum in Greece.—Mr. C. S. Wilson, chargé d'affaires at Athens, under date of May 21, 1902, informs the Department that the Greek Minister of Finance has invited the Russian and Roumanian companies to make proposals for furnishing the petroleum used by the Greek Government. Mr. Wilson adds that

there is a strong probability that the Russian bid will be accepted, on account of the low price, although, from previous trials, Russian petroleum has been found to be inferior in quality to the American product.

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Railway Project in Greece: Correction.—Consul F. W. Jackson, of Patras, under date of June 6, 1902, notes that in his report upon the proposed railway in Greece (ADVANCE SHEETS No. 1318, April 17; CONSULAR REPORTS No. 261, June, 1902) the loan on the railway was erroneously stated at $8,750,000, instead of at $7,000,000.

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Consular Reports Transmitted to Other Departments.—The following reports from consular officers (originals or copies) have been transmitted since the date of the last report to other Departments for publication or for other action thereon:

Consular officer reporting.	Date.	Subject.	Department to which referred.
F. D. Hill, Amsterdam	June 2, 1902	London school of economics.	Bureau of Education.
E. C. Bellows, Yokohama	May 22, 1902	Crop conditions	Department of Agriculture.
W. T. Griffin, Limoges	May 29, 1902	French fruit crop	Do.
Do	June 7, 1902	Porcelain-industry strike	Department of Labor.
M. A. Jewett, Sivas	May 28, 1902	Crop conditions	Department of Agriculture.
E. Schneegans, Saigon	May 8, 1902	Condition of rice market	Do.
Do	May 22, 1902	....do	Do.
W. P. Atwell, Roubaix	June 19, 1902	Patent congress at Lille	Patent Office.
C. E. Turner, Ottawa	June 25, 1902	Labor in building trades	Department of Labor.
W. R. Holloway, St. Petersburg.	....do	Crops in Russia	Department of Agriculture.
F. H. Mason, Berlin	June 18, 1902	German meat-inspection law.	Do.
M. H. Twitchell, Kingston	June 30, 1902	Canadian crop conditions	Do.
H. W. Diederich, Bremen	June 12, 1902	Emigration	Bureau of Immigration.

FOREIGN REPORTS AND PUBLICATIONS.

Navigation of the Niger.—La Quinzaine Coloniale, Paris, June 10, 1902, publishes the following practical conclusions regarding the river and valley of the Niger, taken from the report of Captain l'Enfant:

The question as to whether the River Niger may be utilized, if not as a strategic means of communication, at least as a way of revictualing the Sudan and other military territories in Africa is answered plainly in the affirmative. The Niger, accessible by the Rio Forcados with vessels of 6,000 to 7,000 tons, drawing 22 feet of water, presents a navigable water course of nearly 1,500 miles. There are no difficulties to be overcome as far as Badjibo; from Badjibo to Sakassi navigation is slow and painful, and without staunch boats and cool and experienced pilots it is dangerous. Beyond Sakassi, the river is relatively calm and can be easily rendered navigable as far as Koulikoro. Throughout all the region of the rapids—that is, from Badjibo to Sakassi—navigation demands, according to Captain l'Enfant, "skillful and daring prudence." The current attains at times a velocity of 25 to 31 miles per hour. Added to this peril are huge rocks standing on end, eddies, and whirlpools, swift to draw in and hold, and waves to submerge. Such is the region of the rapids. Even with experienced pilots, the average advance is rarely more than from 1 to 3 miles per day, and the greatest skill must be used to make that. To attempt to cross, at random, in a straight line is to invite certain death. All along the side of the rapids—sometimes on the right, again on the left—the waters have hollowed out for themselves lateral channels or canals, which divide the single and perilous fall of the rapid into a number of small, successive falls. The entrance, which a wild vegetation of gigantic herbs conceals and even obstructs, is difficult to discover; but known rocks furnish exact guides, and the Bambadas—a tribe of experienced sailors—may be relied upon to furnish crews and pilots for this part of the Niger. Many of the obstacles may be overcome by dynamite, and the entrances into these channels of relatively calm water might be suitably indicated.

The inquiry as to whether the Niger has sufficient water for navigation at all times of the year is also answered in the affirmative. The river is deep enough at all times to insure navigation; but the boats, in place of light and open pirogues, should be solid, decked, and flat-bottomed barges, made for the most part of wood. In time, the single-wheeled boats of the Nile and Red River may be introduced. The Niger is, in fact, formed of three rivers, varying in importance and rapidity, rising inch by inch, or swelling the river nearly 6 feet in a single night.

At the time of the floods there is water enough to assure the fertility of nearly the entire valley, the river overflowing its banks during these periodical inundations to a distance of from 31 to 37 miles, and receding, depositing sufficient slime to fertilize the soil. The valley of the Niger can promise everything to cultivation. Cacao, coffee, tea, pepper, spices, and, notably, cotton may be grown. Wild cotton is indigenous; the staple is a little short, but it is of an excellent quality and

needs only to be developed by skillful selection and care to make the valley a great center for its cultivation. If the Niger, however, is to be used in the future as a means of transportation, it must be improved and transformed; its navigation is now too difficult and expensive.

Agricultural Machinery in Guatemala.—The Board of Trade Journal, London, May 1, 1902, contains the following extracts from a recent British consular report:

It may first be broadly stated that the large majority of the machinery employed in Guatemala is that used in the coffee and sugar raising industries, and that, while most of the coffee-cleaning plant is brought from England, that which is used on sugar plantations comes from the United States. The smaller implements come in about equal quantities from both countries.

There are only one or two houses in Guatemala which manufacture machinery and agricultural implements. The articles made by them are: Coffee-drying machines, worked with hot air, live steam, or exhaust steam, and of 20, 30, 60, or 90 quintals capacity; coffee pulpers, coffee-washing machinery, coffee sorters or separators, coffee peelers, elevators for coffee; sugar-cane mills for steam and water power, iron sugar pans, sugar-evaporating pans; Pelton wheels of all sizes, iron water wheels under and over shot, iron work for water wheels, turbine wheels; steam boilers (Heine's patent), tubular, up to 60 horsepower; Corliss engine up to 50 horsepower; lift and force pumps; couplings and bearings and cast-iron pulleys; single and double circular sawmills; and all kinds of casting of brass and iron. Although these local works no longer do the business they did in former years, they are still in a flourishing condition, and are largely employed for works of repair and in making smaller pieces of machinery.

As the result of inquiries made during a visit to one of the largest coffee and sugar plantations in the country, the British consul writes:

The coffee pulpers are made by and got from a London firm, as also the coffee washers and boilers. The Pelton driving wheels have been brought from the United States, while the dynamo used for the electric lighting is of German manufacture. The coffee driers, of which there are two of 75 quintals capacity, are worked by the Guardeola hot-air system, and are made by the same London firm alluded to above. The machine known as the Trilla, for breaking and partially cleaning the coffee, is one of Anderson's patents, and was manufactured by a German firm. The separator (fifteen revolutions per minute) is by the same London firm. The sugar plant, which is very large, was got entirely from a London firm. The weighing apparatus has been supplied from the United States. This plantation extends over 3,000 acres and produces annually from 10,000 to 12,000 quintals of coffee, 6,613,800 pounds of sugar, 300,000 bottles of brandy, and 26,418 gallons of milk, with some 2,000 head of cattle, while from 900 to 1,300 laborers are employed. All the machinery is of the newest and most improved kind, and no expense has been spared with regard to this branch. The plantation may be regarded as a sample of the large foreign-owned plantations of the country, of which there are many; and it may be taken for granted that most of the machinery used in these other plantations comes from the same sources.

German houses are the largest importers of agricultural machinery in the country, owing probably to the fact that the majority of foreign planters are Germans. The industry of the country consisting almost wholly in the raising of coffee and sugar crops, machinery employed in these industries seems to be that most certain of a sale, and the demand for such machines is very fixed in amount, as most of the plantations have already got all their plant and only require new pieces from time to time as the old machinery becomes worn, or when some new patent is discovered and issued which materially lessens the labor required or improves or increases the product. There is a constant demand for smaller agricultural implements, such as "machetes," knives, hoes, spades, etc. There is a considerable demand for some improved form of plow. It appears that the ordinary plow imported from the United States or Europe is not very satisfactory. The soil here becomes baked to a hardness of steel, and the share or knife of the plow generally in use glances and slips on the earth's surface. What is wanted is a plow so shaped as to point its share deeper into the ground, so as to turn over a good furrow and not to slip on the top of the earth.

Trade of Madagascar in 1901.—The following official statistics regarding the general commerce of Madagascar in 1901 are given in La Quinzaine Coloniale, Paris, June 25, 1902:

The total trade of Madagascar in 1901 was $10,616,589, representing a weight of 110,092 metric tons, an increase of $755,315 and of 7,579 metric tons over the preceding year. The following table compares the results for the last three years:

Year.	Imports.	Exports.	Total.
1899	$5,387,907	$1,552,957	$6,940,864
1900	7,810,866	2,050,407	9,861,273
1901	8,884,323	1,732,266	10,616,589

The chief articles of import in 1901 were:

Article.	Quantity.	Value.	Increase.	Decrease.
	Tons.			
Cotton tissues	4,189	$2,312,168	$293,105	.....
Rice	26,179	1,088,643	735,725	.....
Wine, ordinary	5,875	490,709	42,387	.....
Metal manufactures	2,469	399,625	108,267	.....
Spirits	2,949	327,109	.....	$109,761
Flour	3,230	307,667	111,210	.....
Metals	2,348	243,141	26,641	.....
Iron manufactures	775	219,810	118,883	.....
Lime (cement)	10,538	206,512	124,933	.....
Coal	18,410	184,894	.....	104,958
Wood	3,891	168,342	9,257	.....
Household articles	634	127,583	25,677	.....
Sugar	1,114	104,363	51,606	.....
Ready-made clothing	103	98,509	.....	72,778
Preserved meats	306	87,899	58,365	.....

The principal articles of export were:

Article.	Quantity.	Value.	Increase.	Decrease.
Raffia ..... tons...	3,398	$377,451	.....	.....
Cattle ..... do.....	2,174	156,742	.....	$66,335
Hides ..... do.....	757	152,219	$19,485	.....
Caoutchouc ..... do.....	188	128,824	.....	224,715
Wax ..... do.....	262	125,398	27,392	.....
Dried vegetables ..... do.....	710	38,205	.....	9,169
Vanilla ..... do.....	7	30,882	.....	.....
Wood for cabinetwork ..... do.....	562	21,528	11,630	.....
Vegetable hair ..... do.....	60	7,035	.....	7,156
Cloves ..... do.....	34	5,155	.....	7,362
Cacao ..... do.....	7	4,443	2,118	.....
Gum copal ..... do.....	18	3,454	11	.....
Gold dust ..... pounds...	2,374	590,765	.....	50,590
Gold in bars ..... do.....	245	46,073	.....	5,041
Tortoise shells ..... do.....	3,314	10,711	.....	2,569

France and the French colonies lead in the import trade, with an increase of nearly $1,158,000 over the preceding year. The share of the principal countries was:

France and French colonies	$8, 202, 500
England and English colonies	316, 084
Germany	100, 567
African coast	109, 773
Sweden and Norway	86, 780
Other countries	384, 703

The export trade was distributed as follows:

France and colonies	$1, 251, 162
Germany	258, 759
African coast	114, 903
England and colonies	88, 884
Other countries	18, 558

Trade of Uruguay in 1901.—The Nachrichten für Handel und Industrie, Berlin, April 21, 1902, quotes the following statistics regarding the foreign trade of Uruguay in 1901 from the Montevideo Times:

The customs administration of Uruguay values the import trade of the Republic at $23,691,932 and the exports at $27,731,126. The following table shows the value of the trade for the last five years:

Year.	Imports.	Exports.
1897	$19,512,216	$29,319,753
1898	24,784,360	30,276,916
1899	25,652,788	36,574,164
1900	23,978,206	29,410,862
1901	23,691,932	27,731,126

According to this table, the imports of 1901 are less than those of the preceding three years. The principal articles forming this trade were, with increase and decrease over 1900:

Article.	Value.	Increase.	Decrease.
Beverages	$2,284,627	.....	$78,940
Food products and groceries	5,129,837	$177,160	.....
Tobacco and cigars	231,823	21,402	.....
Textiles	3,936,184	.....	365,599
Ready-made clothing	954,333	.....	152,390
Raw material for industries	7,755,510	406,330	.....
Live animals	822,713	.....	187,246

The export trade of Uruguay for 1901 was principally as follows:

Article.	Value.	Increase.	Decrease
Live animals	$473,422	.....	$60,794
Slaughterhouse products	25,931,115	.....	674,547
Agricultural products	572,648	.....	1,096,855
Ships' provisions	127,877	$7,936	.....

The retrogression in agricultural products for 1901 was due chiefly to the poor wheat harvest.

Industrial Enterprises in Abyssinia.—La Quinzaine Coloniale, Paris, May 25, 1902, says:

Newcomers to Addis-Ababa find it difficult to secure houses. It would be a good plan for small builders to install themselves here with a corps of workmen and build houses by contract. It is intended to install a system of distribution of water by canalization. The importance of this work, given the extent of the town, would be considerable. Another interesting enterprise, which it is hoped will be realized, is the creation of a bath establishment by utilizing a warm spring located in the center of the town; to this construction a hotel could be successfully added. There are many small industries which could be created in this country. As regards mining, some ten concessions have been granted; but it has been decided to await the result of the preliminary studies before granting more. Telegraph and telephone services work with regularity between Harrar and Addis-Ababa.

Progress of Lu-Han Railway, China.—The following extracts are taken from British Consular Reports No. 2795:

The Lu-Han Railway has now almost reached the Honan border, and trains run three times a week from the Gare Fluviale, some 3 miles below Hankau, where the river has been bunded and a considerable station laid out, to Kwang-shin, a town some 96 miles distant. The progress of the Lu-Han Railway has led to an increased import of locomotives, railway plant, and sleepers, and has also augmented the figures for foreign bricks ($23,213) and cement, some of which were for buildings on the concessions, machinery (in which the Pingyang coal mines shared), and

wagons, which include supplies for the Ta-yeh coal mines. The embankment from the Gare Fluviale to the Han River suffered much from the summer floods, but has now been repaired; the rails are laid, and the line, a single track, is being metaled. The Hanyang iron works supply most of the metals for the railway.

Trade of Servia in 1901.—The Nachrichten für Handel und Industrie, Berlin, May 10, 1902, says that the imports into Servia in 1901 were valued at $8,459,632, against $10,427,255 in 1900, a decrease of nearly 20 per cent. The exports of Servia were given in 1901 at $12,677,331, compared with $12,838,738 in the preceding year, a decrease of about 1 per cent.

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